Aficio Color 5106/5206
(Lily, A172/A199)
Service Manual

Issued May 10, 1996, Ricoh CO., LTD.

LILY (A172/A199)

PARTS CATALOG

First Edition June 1996

Ricoh Company,LTD.

PARTS CATALOG

INTRODUCTION

This chapter instructs you the numbers and names of parts on this machine.

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Lily (Copier)	**(A172/A199)**
DF62	**(A610)**
CS250	**(A322)**
Sorter Adapter Type J	**(A527)**
SPU3	**(A718)**
Holder Type C	**(A702)**

Lily (Copier) (A172/A199)

PARTS CATALOG

INTRODUCTION

This chapter instructs you the numbers and names of parts on this machine.

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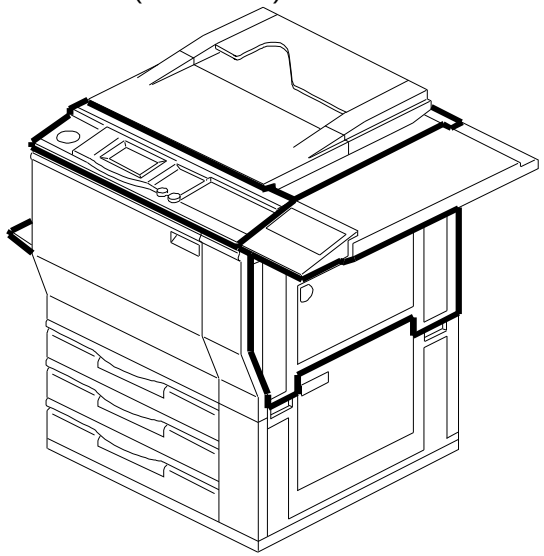
Location of Unit

1. Exterior 1 (A172/A199)



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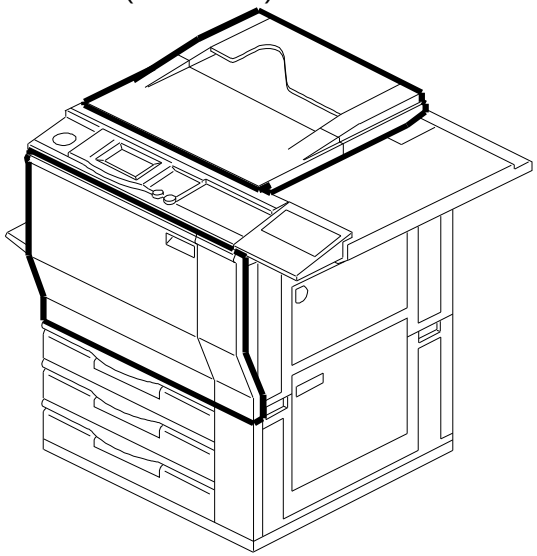
2. Exterior 2 (A172/A199)



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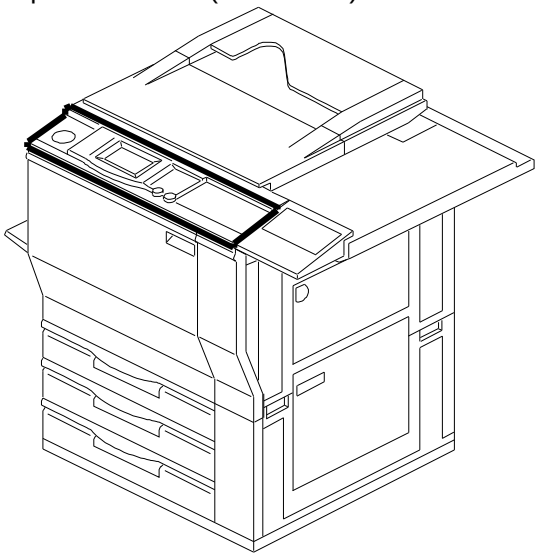
3. Operation Panel (A172/A199)



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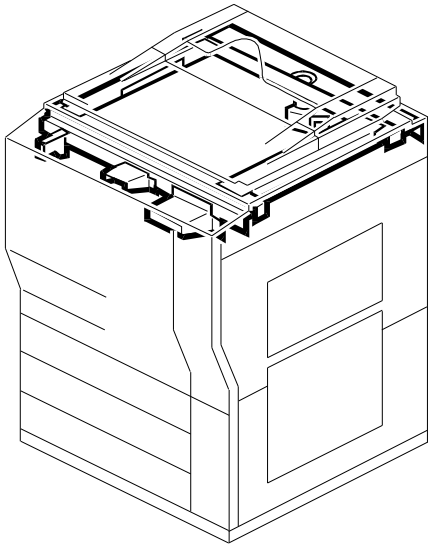
4. Optics Section 1 (A172/A199)



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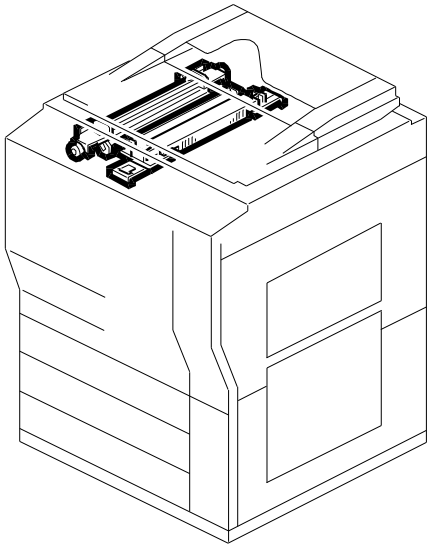
5. Optics Section 2 (A172/A199)



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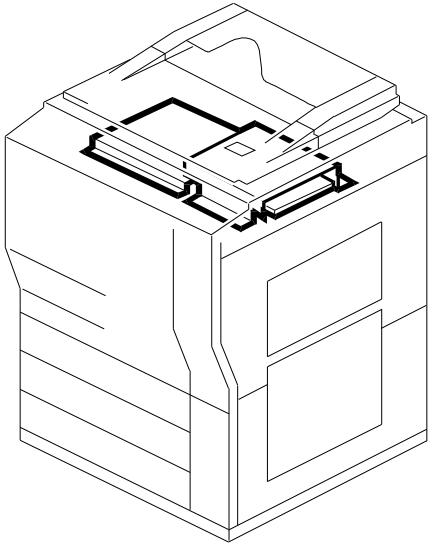

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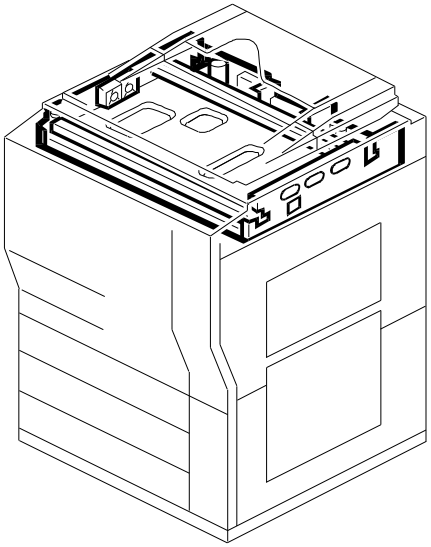
7. Optics Section 4 (A172/A199)



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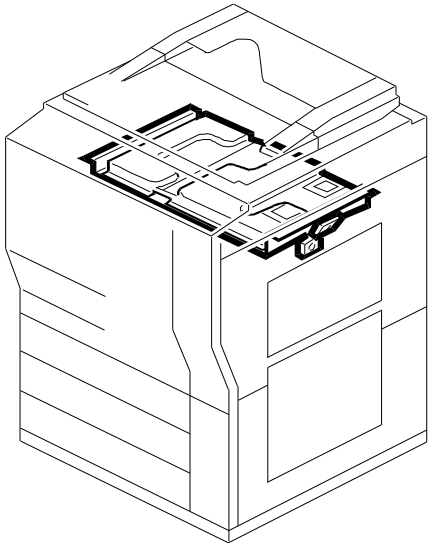
8. Printer Section 1 (A172/A199)



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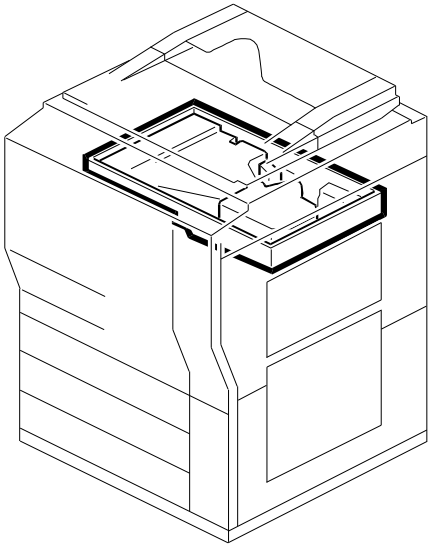

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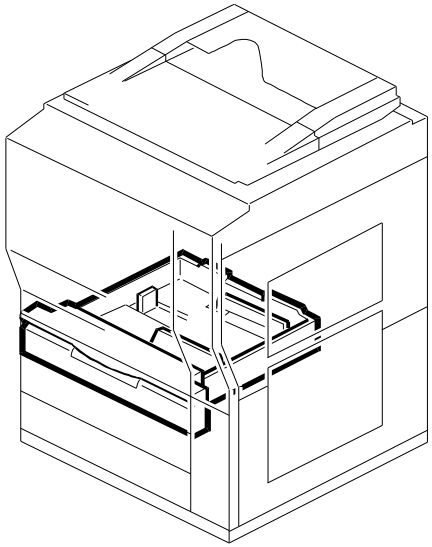
10. 1st And 2nd Paper Feed Tray (A172/A199)



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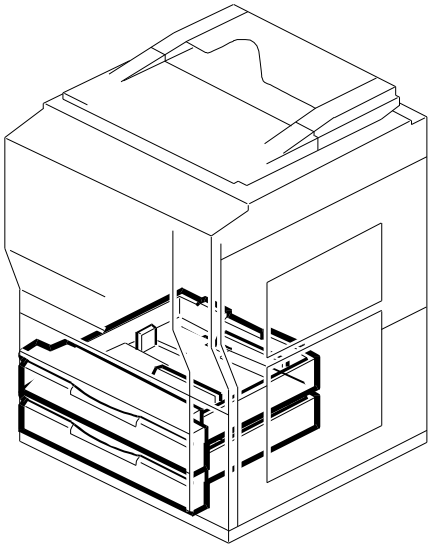
11. 3rd Paper Feed Tray (A172/A199)



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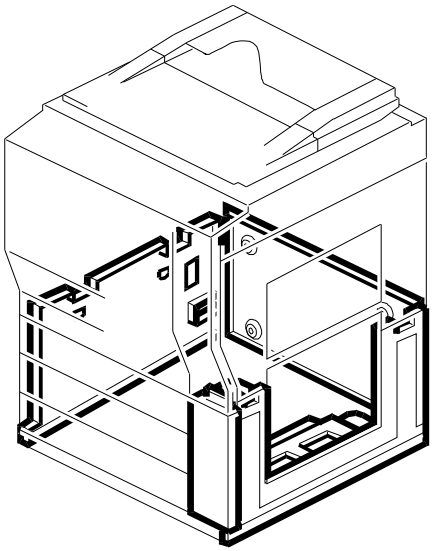
12. Paper Supply Unit 1 (A172/A199)



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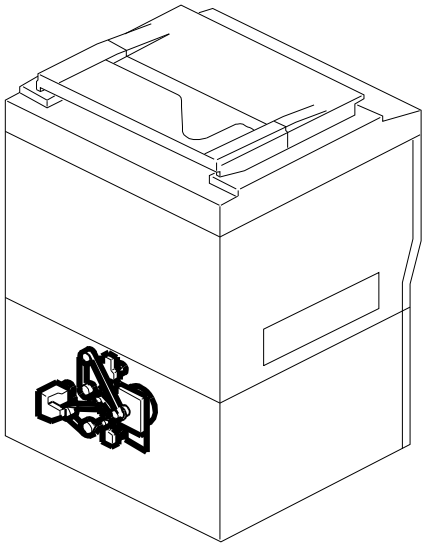
13. Paper Supply Unit 2 (A172/A199)



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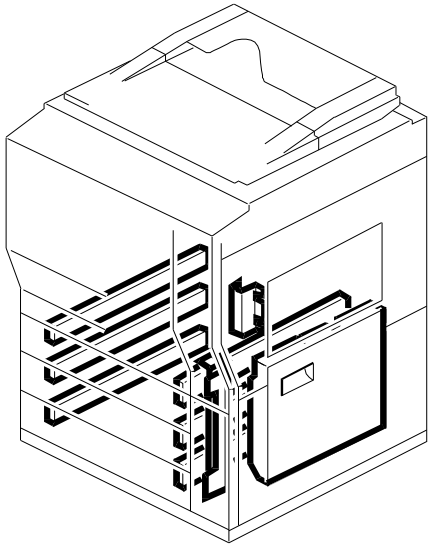
14. Paper Supply Unit 3 (A172/A199)



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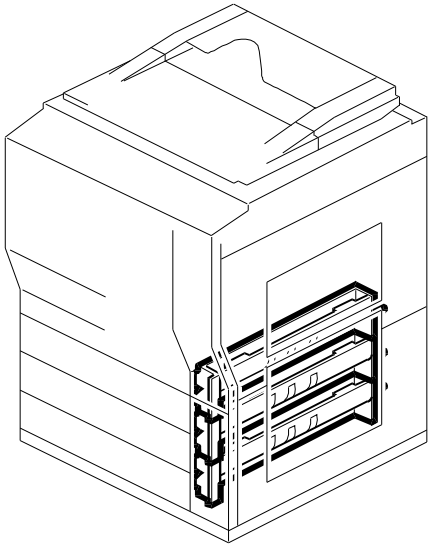
15. Paper Feed Section 1 (A172/A199)



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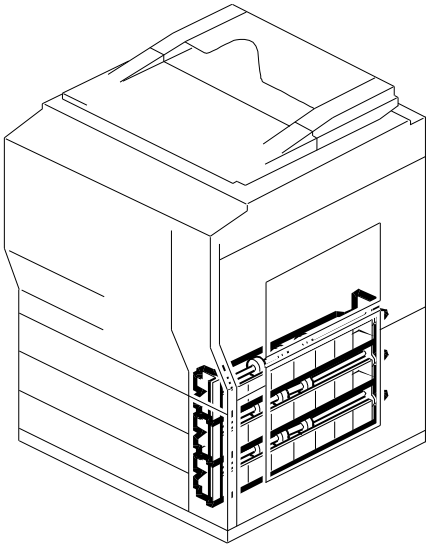
16. Paper Feed Section 2 (A172/A199)



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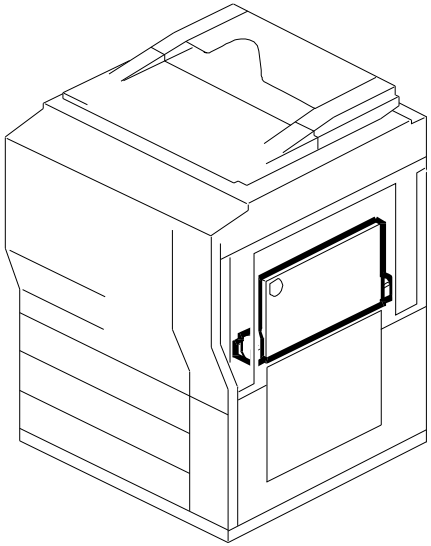
17. By-pass Feed Table (A172/A199)



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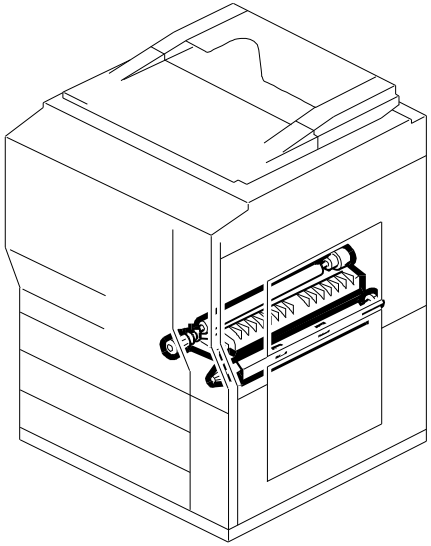
18. Paper Registration (A172/A199)



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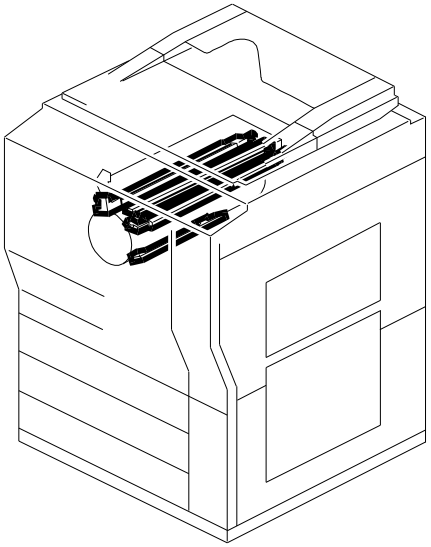
Location of Unit

19. Around The Drum (A172/A199)



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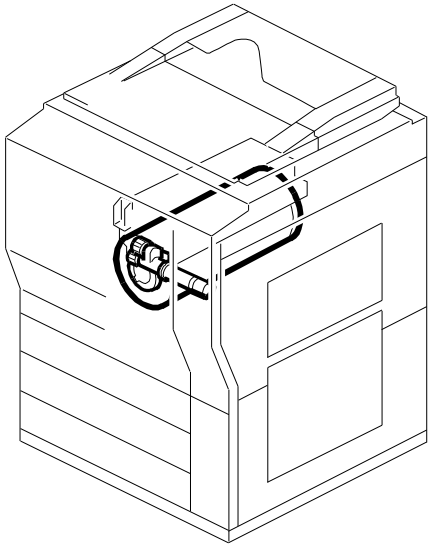
20. Drum Unit 1 (A172/A199)



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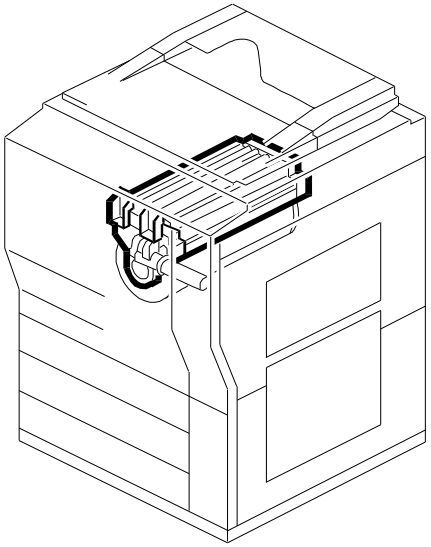
21. Drum Unit 2 (A172/A199)



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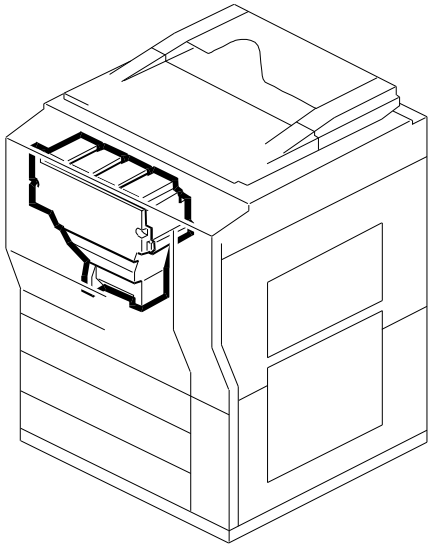
22. Toner Tank Unit 1 (A172/A199)



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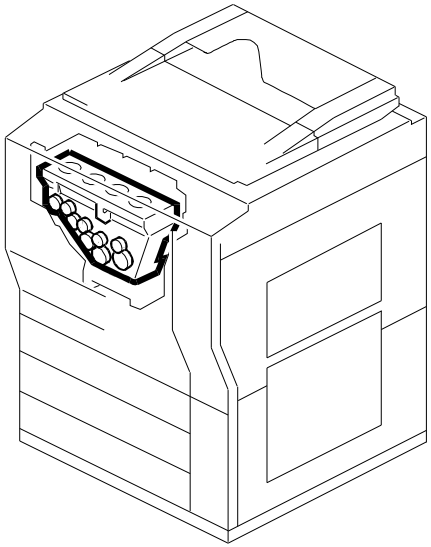
23. Toner Tank Unit 2 (A172/A199)



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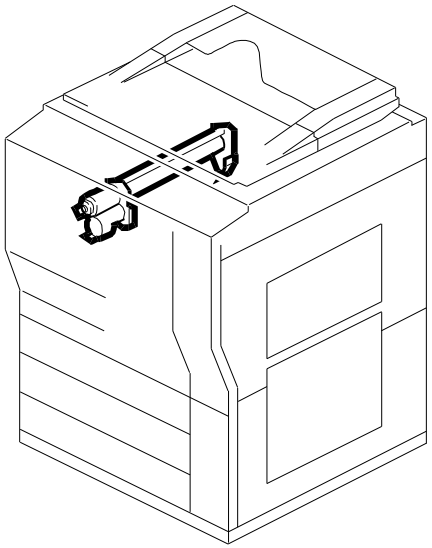
24. Development Unit - Black (A172/A199)



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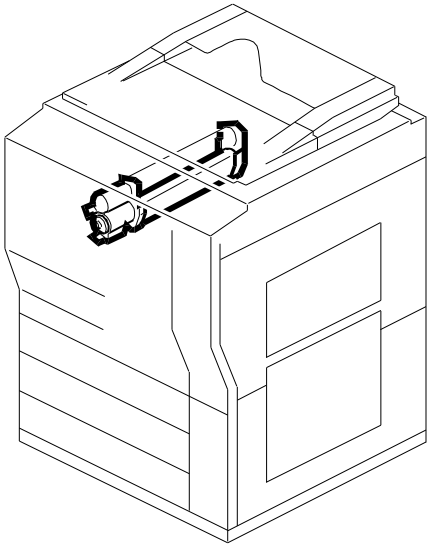
Location of Unit

25. Development Unit - Cyan (A172/A199)



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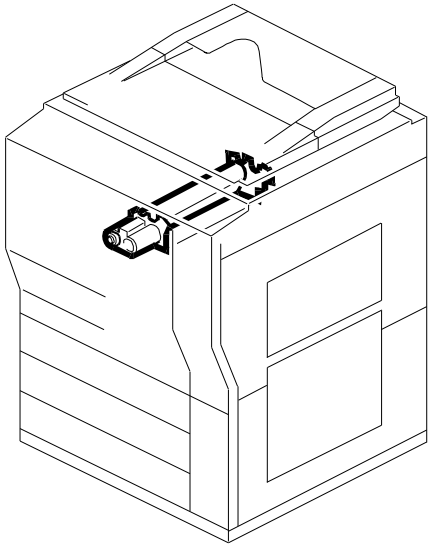
26. Development Unit - Magenta (A172/A199)



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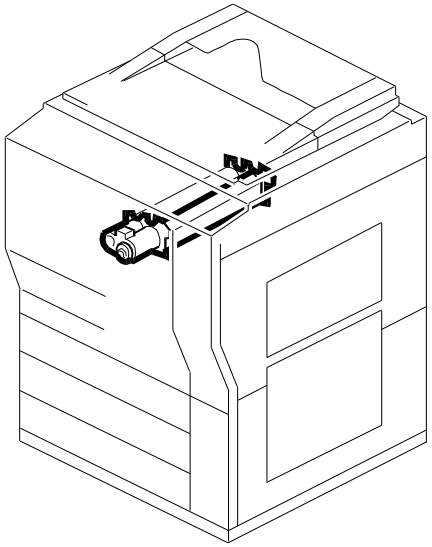
27. Development Unit - Yellow (A172/A199)



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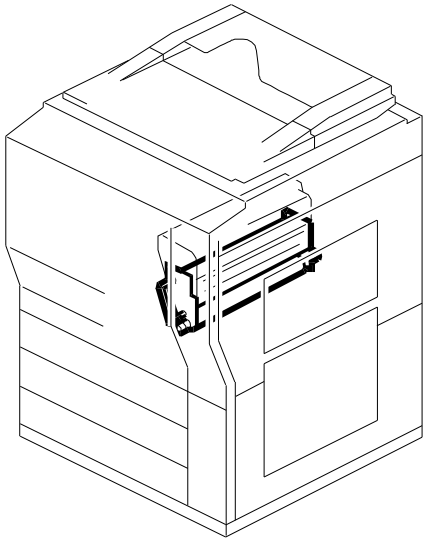
28. Transfer Belt Unit 1 (A172/A199)



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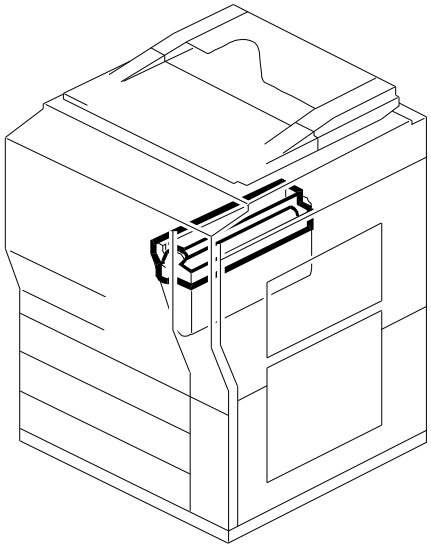
29. Transfer Belt Unit 2 (A172/A199)



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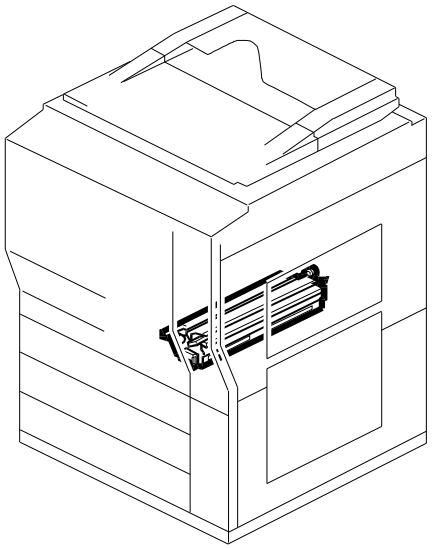
30. Transfer Roller Unit (A172/A199)



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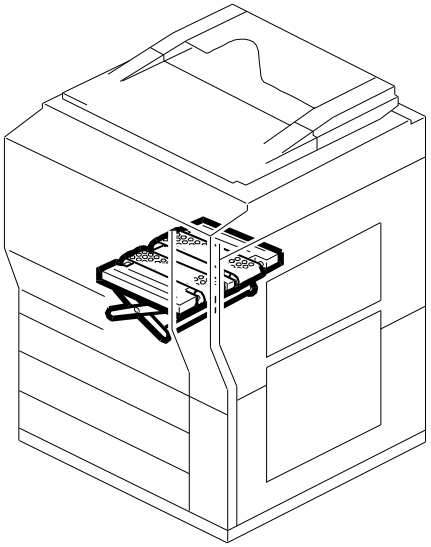
Location of Unit

31. Transport Unit (A172/A199)



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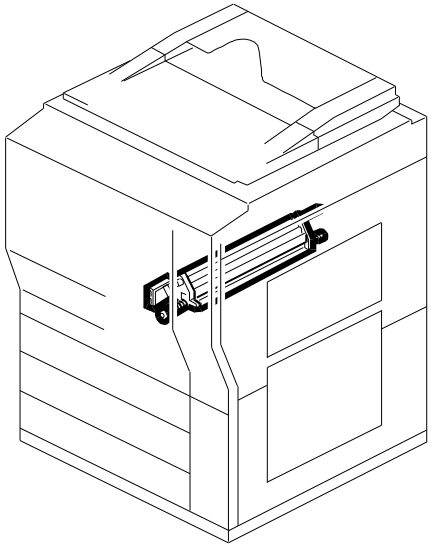
32. Belt Cleaning Unit (A172/A199)



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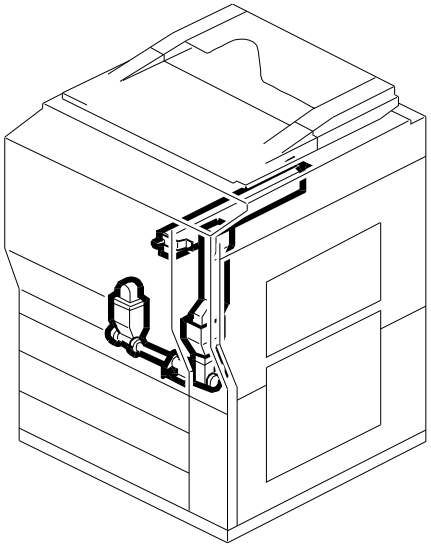
33. Toner Collection Section (A172/A199)



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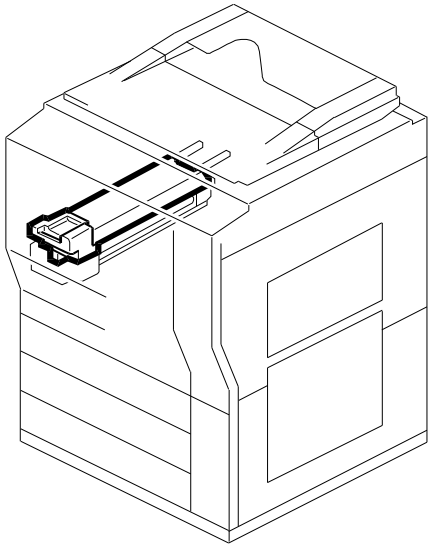
34. Fusing Unit 1 (A172/A199)



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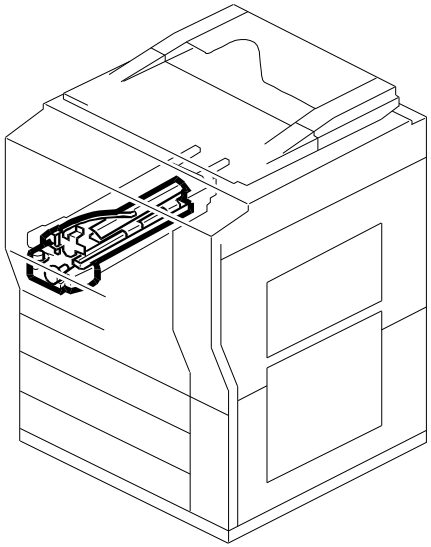
35. Fusing Unit 2 (A172/A199)



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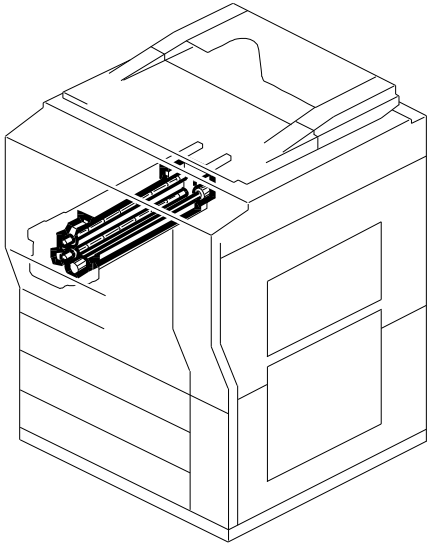
36. Fusing Unit 3 (A172/A199)



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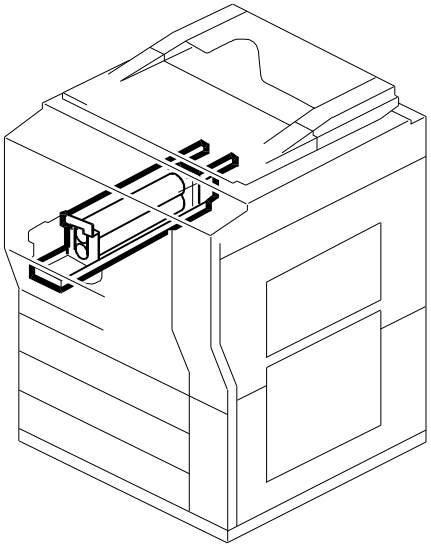
Location of Unit

37. Fusing Unit 4 (A172/A199)



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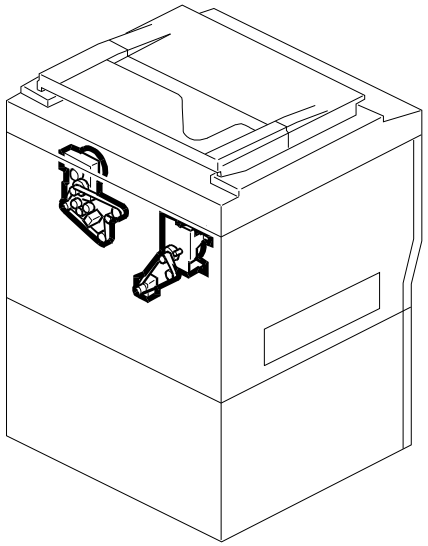
38. Drive Section 1 (A172/A199)



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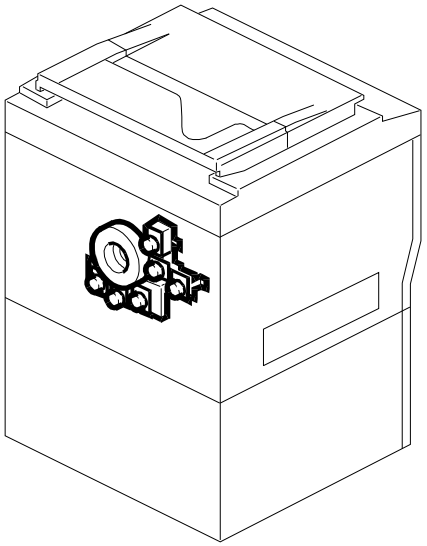
39. Drive Section 2 (A172/A199)



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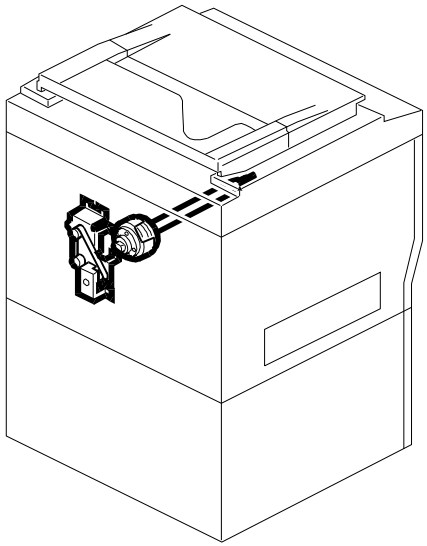
40. Drive Section 3 (A172/A199)



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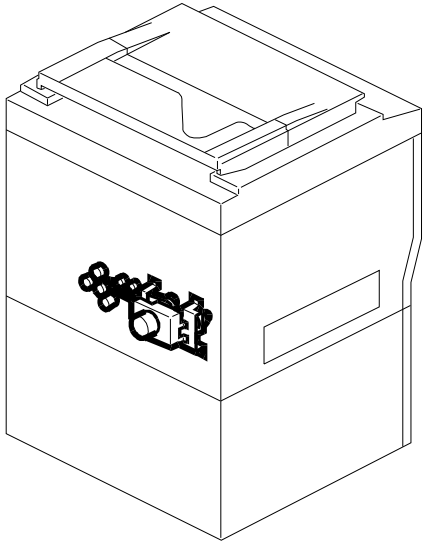
41. Drive Section 4 (A172/A199)



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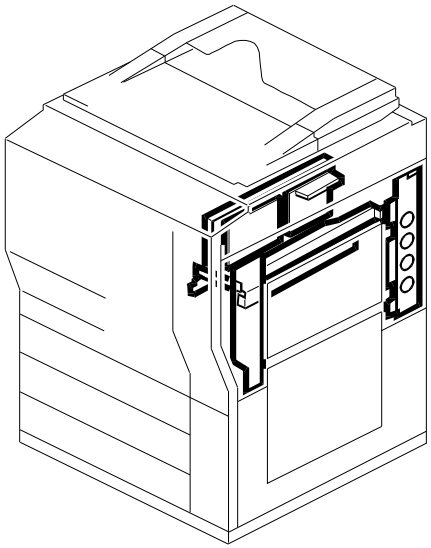
42. Electrical Section 1 (A172/A199)



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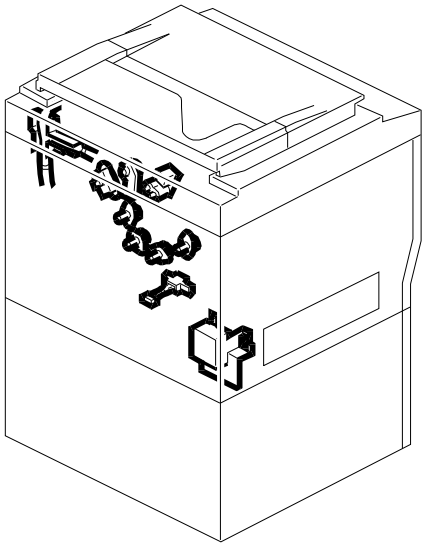
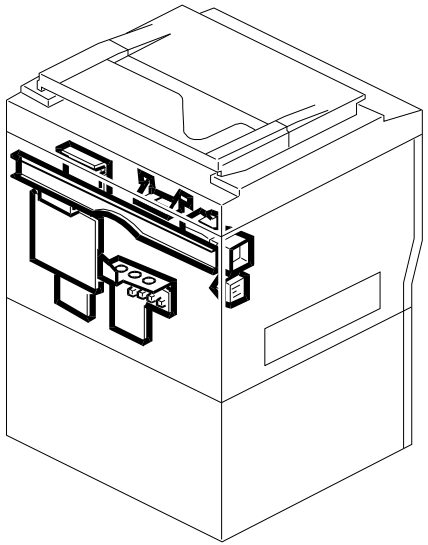
Location of Unit

43. Electrical Section 2 (A172/A199)



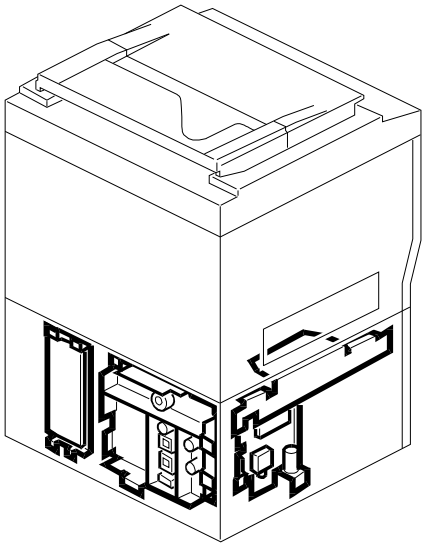
See Page 96

44. Electrical Section 3 (A172/A199)



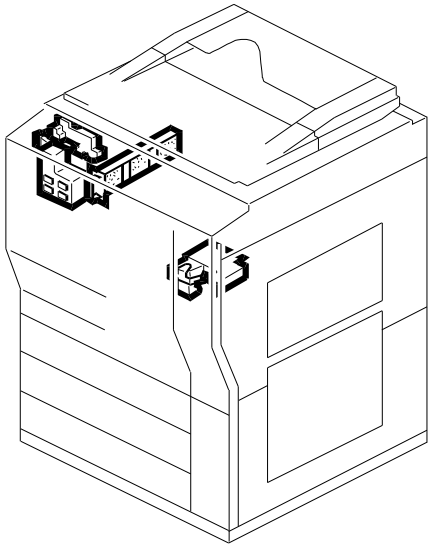
See Page 98

45. Electrical Section 4 (A172/A199)



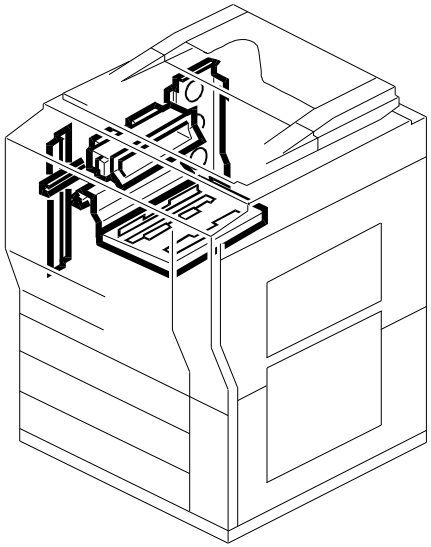
See Page100

46. Frame Section 1 (A172/A199)



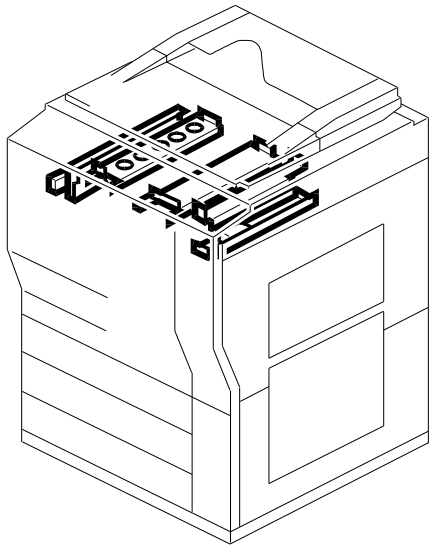
See Page102

47. Frame Section 2 (A172/A199)



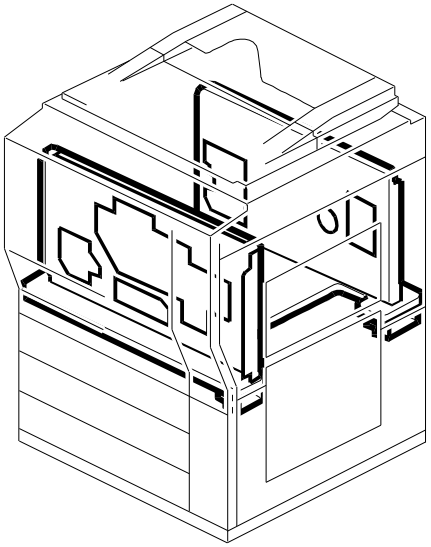
See Page104

48. Frame Section 3 (A172/A199)

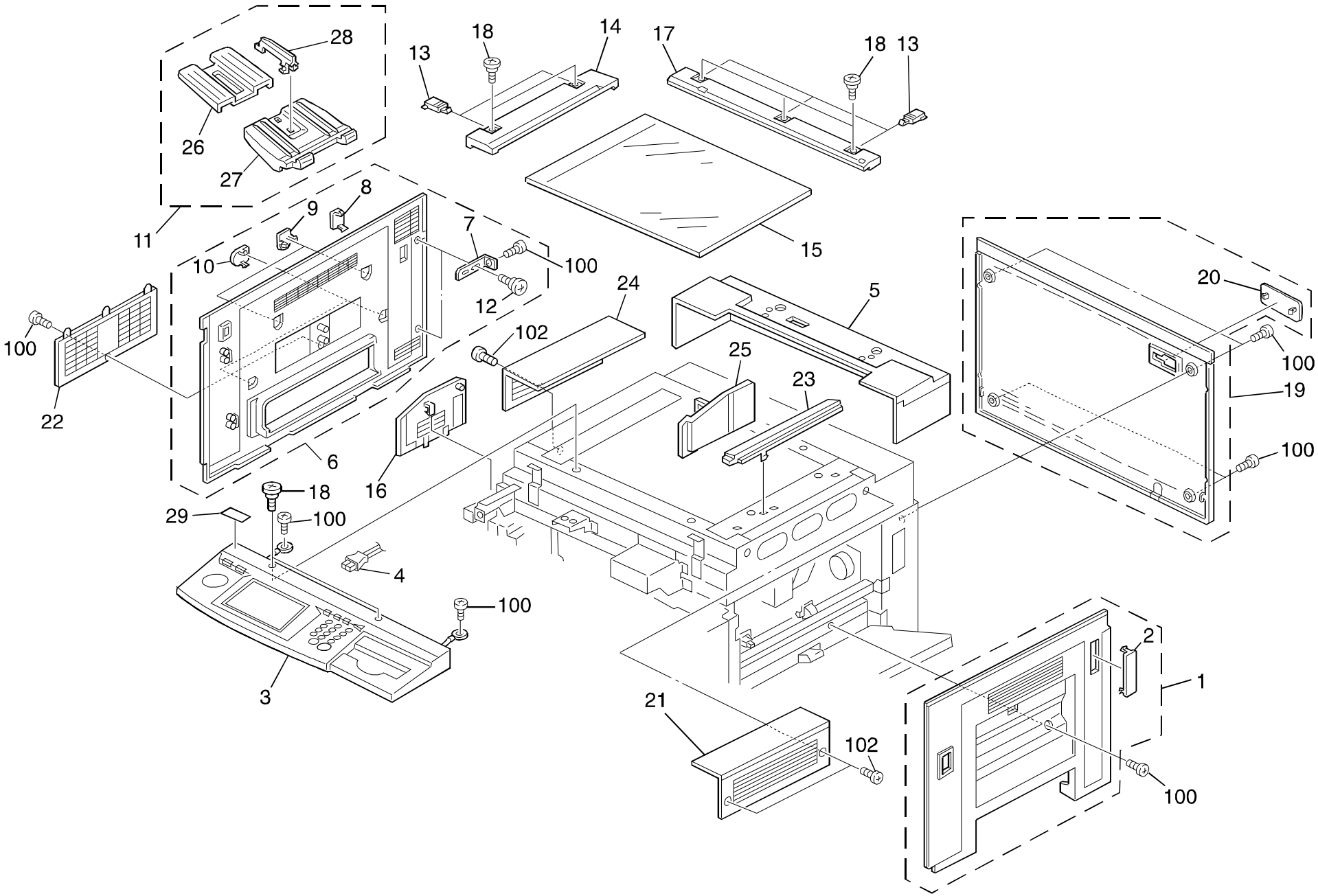


See Page106

Location of Unit

49. Frame Section 4 (A172/A199)  See Page108		

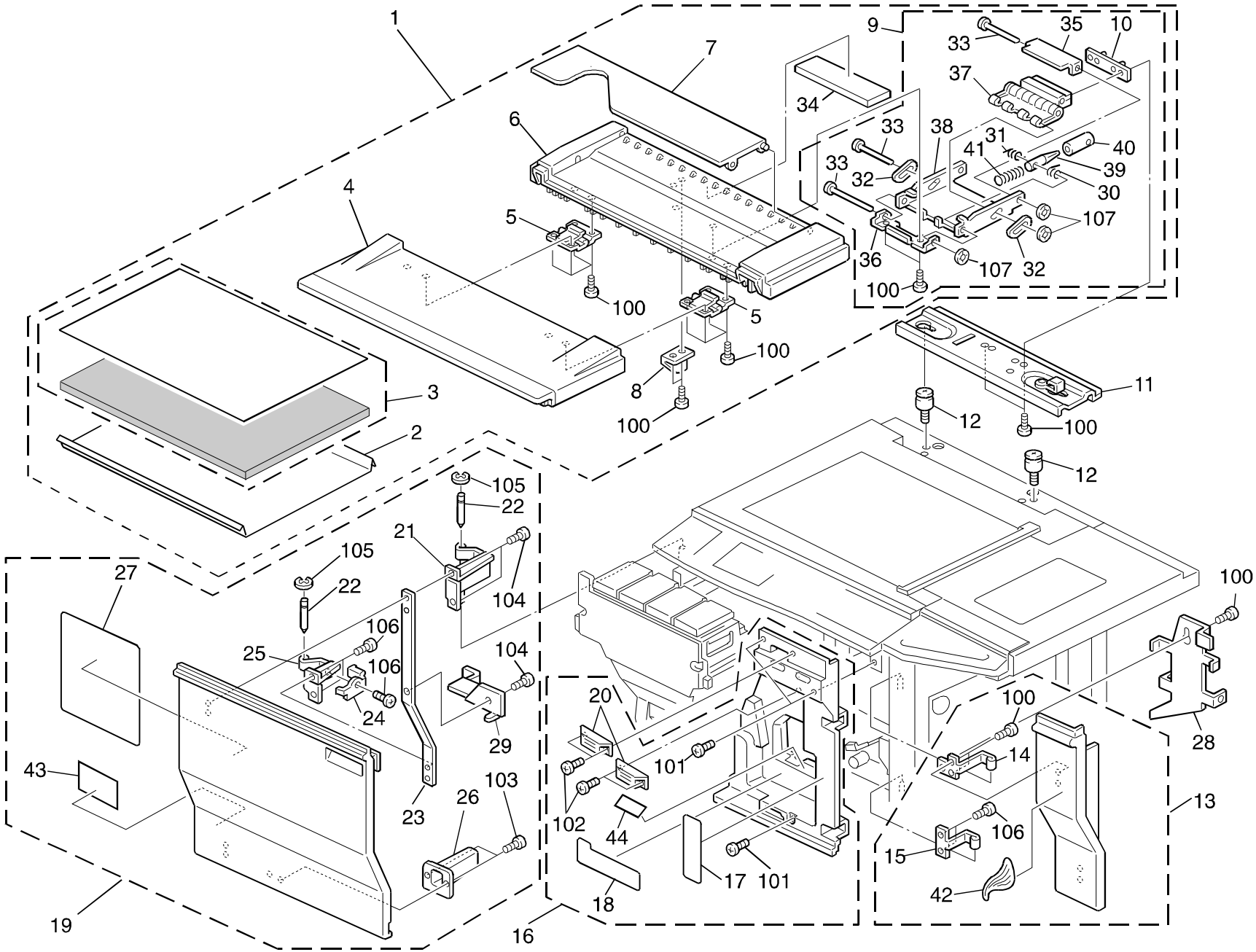
1. Exterior 1 (A172/A199)



1. Exterior 1 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A172 1270	Right Cover Ass y	1
2	A172 1272	Right Cover Cap	1
3	A172 7301	Operation Panel Ass y - LT (A172)	1
3	A172 7302	Operation Panel Ass y - A4 (A172)(RIC/INF)	1
3	A172 7303	Operation Panel Ass y - A4 (A172)(NRG)	1
3	A199 7301	Operation Panel Ass y - LT (A199)	1
3	A199 7302	Operation Panel Ass y - A4 (A199)(RIC/INF)	1
3	A199 7303	Operation Panel Ass y - A4 (A199)(NRG)	1
4	AW03 0034	Optics Fiber Cable - 1400mm	1
5	A172 1260	Rear Upper Cover	1
6	A172 1275	Left Cover Ass y	1
7	A109 1276	Left Cover Bracket	2
8	A172 1280	Sorter Cap - Large	1
9	A172 1279	Sorter Cap - Small	2
10	A134 1328	Small Cap	2
11	AF04 3090	Copy Tray Ass y	1
12	A109 4775	Stepped Screw - M5	2
13	A172 1964	Scale Cap	5
14	A172 1900	Left Scale - A4	1
14	AC04 2153	Left Scale - LT	1
15	A109 1911	Exposure Glass Ass y	1
16	A172 1264	Front Left Upper Cover	1
17	A172 1901	Rear Scale - A4	1
17	A172 7821	Rear Scale - LT	1
18	AA14 0065	Stepped Screw - M3x6	7
19	A172 1300	Rear Cover Ass y (115V)	1
19	A172 1303	Rear Cover Ass y (230V)	1
20	A166 1349	Cap - DF Unit	1
21	A172 1266	Right Upper Cover	1
22	A172 1277	Dust Filter Cover	1
23	A172 1265	Original Exit Guide	1
24	A172 1262	Left Upper Cover	1
25	A172 1263	Front Right Upper Cover	1
26	AF04 3076	Copy Tray Slide	1
27	AF04 3091	Copy Tray	1
28	AF04 3092	Copy Tray Guide	1
29	C225 2866	Decal - Key Top Cover (REX)	1
29	C225 2867	Decal - Cover - Panel - Nashua	1
29	A153 6409	Decal - Keytop Cover (GES)	1
100	0344 0060F	Philips Truss Head Screw - M4x6	
101	0314 0060B	Philips Pan Head Screw - M4x6	
102	0344 0080F	Philips Truss Head Screw - M4x8	

2. Exterior 2 (A172/A199)

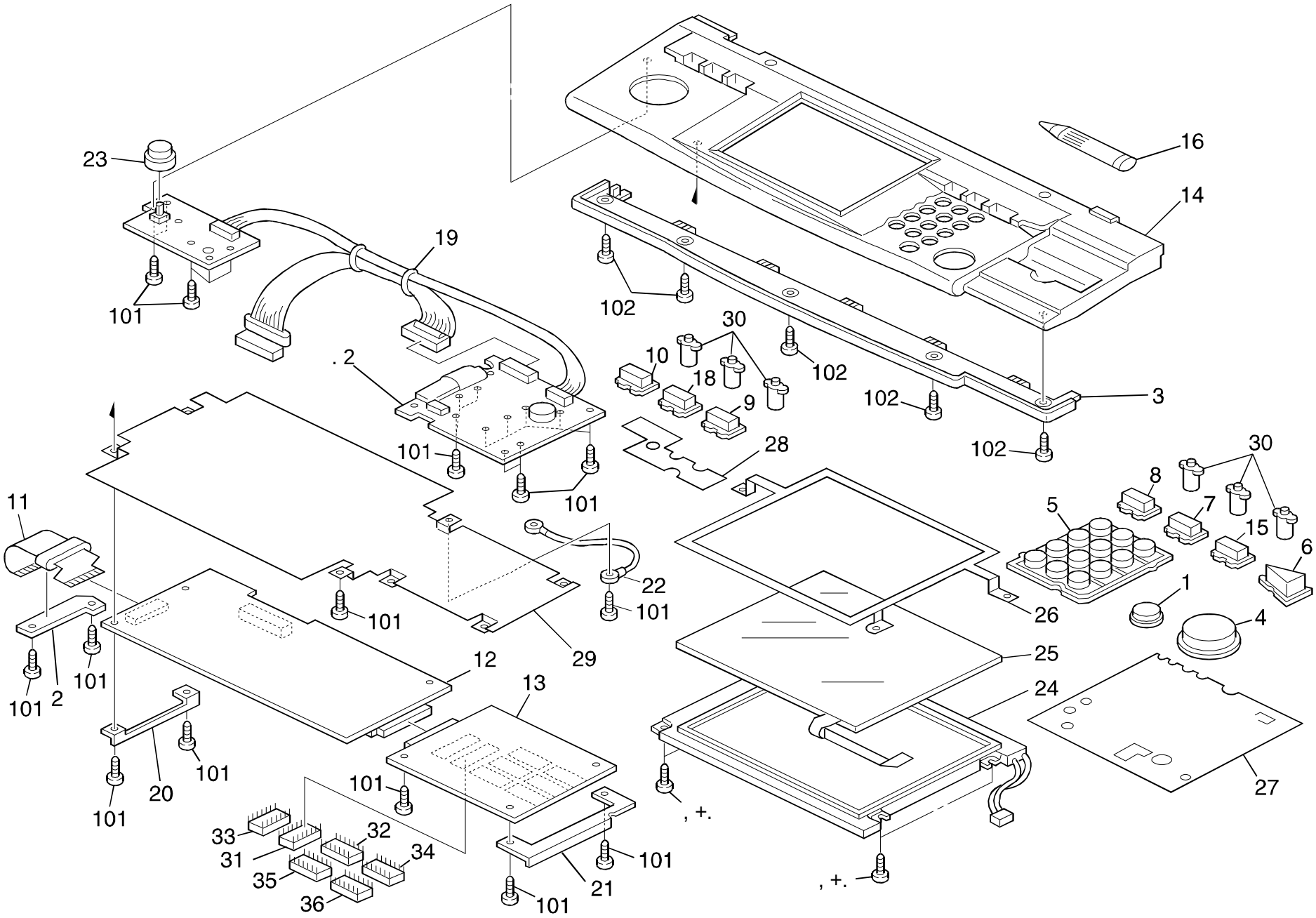


2. Exterior 2 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A134 1393	Platen Cover Ass y	1
2	A406 9505	Platen Cover Sheet - 10 Sheet/1 Set	1
3	AA16 2053	Platen Cover Pad	1
4	A134 1394	Front Platen Cover	1
5	A053 1957	Flex Hinge - Platen Cover	2
6	A134 1395	Rear Platen Cover	1
7	A134 1396	Original Holder	1
8	A100 1324	Positioning Sensor Shutter	1
9	A100 1310	Platen Cover Hinge Ass y	1
10	A100 1325	Hinge Spacer	1
11	A153 1380	Platen Cover Bracket	1
12	5215 1667	Platen Cover Stud	2
13	A172 1340	Right Door Ass y (A172/A199)(SVN/INF/NRG)	1
13	A172 7100	Door - Right - Ric - Edit (A172-RIC)	1
13	A199 7100	Door - Right - Ric - Basic (A199-RIC)	1
14	A109 1290	Right Upper Door Hinge	1
15	A109 1291	Right Lower Door Hinge	1
16	A109 1374	Right Inner Cover	1
17	A109 1553	Decal - Misfeed Removal B	1
18	A109 1552	Decal - Misfeed Removal A	1
19	A172 1290	Left Door Ass y (A172/A199)(RIC)	1
19	A172 7115	Left Door Ass y (A172/A199)(NRG)	1
19	A172 7105	Door - Left - Savin - Edit (A172-SVN)	1
19	A199 7105	Door - Left - Savin - Basic (A199-SVN)	1
19	A172 7120	Door - Left - Inf - Edit (A172-INF)	1
19	A199 7120	Door - Left - Inf - Basic (A199-INF)	1
20	AG07 0004	Magnetic Catch	2
21	A109 1307	Left Upper Door Hinge	1
22	AA14 5180	Pin - Hinge	2
23	A109 1306	Left Door Hinge Plate	1
24	A109 4776	Hinge Support Plate	1
25	A109 1308	Left Lower Door Hinge	1
26	A172 1294	Left Door Stopper	1
27	A109 1554	Decal - Misfeed Removal D	1
28	A109 1135	Safety Switch Actuator	1

Index No.	Part No.	Description	Q ty Per Assembly
29	A109 1310	Fusing Lever Stopper	1
30	5215 2843	Left Spring - Platen Cover	1
31	5215 2842	Right Spring - Platen Cover	1
32	5215 2844	Slide Supporter	2
33	5215 2840	Pin - 4x115mm	3
34	5215 2838	Rubber Magnet	1
35	5215 2845	Plate - Magnet	1
36	5215 2846	Platen Base	1
37	5215 2847	Base Holder	1
38	A069 1972	Arm Holder	1
39	5215 2837	Shaft 7x40mm	1
40	5215 2836	Sleeve - 8x34mm	1
41	A100 1311	Balancer Spring	1
42	A172 1591	Decal - Color (SVN/INF/NRG)	1
42	A172 1595	Decal - Color (RIC)	1
43	A172 6703	Decal - Operation	1
44	AA00 1377	Decal - Positioning Display - B2	1
45	A172 6704	Model Name Plate - Ges - 2606E	1
45	A172 6705	Model Name Plate - Nashua - C606E	1
45	A172 6706	Model Name Plate - Rex - CC8606E	1
45	A199 6704	Model Name Plate - Ges - 2606	1
45	A199 6705	Model Name Plate - Nashua - C606	1
45	A199 6706	Model Name Plate - Rex - CC8606	1
100	0414 0142W	Tapping Screw - M4x14	
101	0344 0060F	Philips Truss Head Screw - M4x6	
102	0434 0102W	Tapping Screw - M4x10	
103	0344 0080F	Philips Truss Head Screw - M4x8	
104	0354 0100W	Philips Pan Head Screw - M4x10	
105	0720 0030E	Retaining Ring - M3	
106	0314 0050W	Philips Pan Head Screw - M4x5	
107	0805 0083	Retaing Ring - M4	

3. Operation Panel (A172/A199)

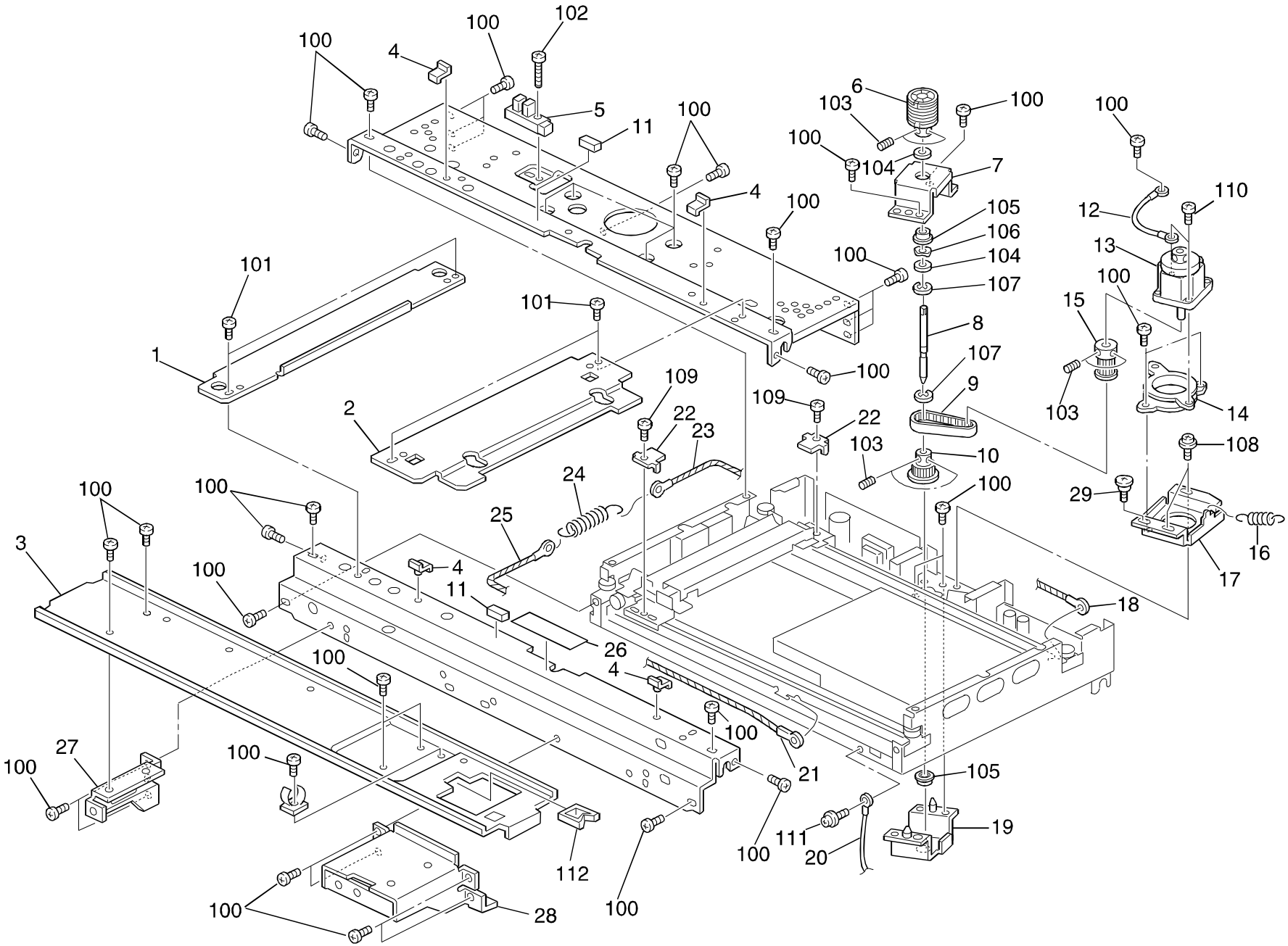


3. Operation Panel (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
*	A172 7301	Operation Panel Ass y - LT (A172)	1
*	A172 7302	Operation Panel Ass y - A4 (A172)(RIC/INF)	1
*	A172 7303	Operation Panel Ass y - A4 (A172)(NRG)	1
*	A199 7301	Operation Panel Ass y - LT (A199)	1
*	A199 7302	Operation Panel Ass y - A4 (A199)(RIC/INF)	1
*	A199 7303	Operation Panel Ass y - A4 (A199)(NRG)	1
1	A126 1526	Key Top - Clear/stop	1
2	A172 7348	Support Bracket	1
3	A172 1480	Operation Panel Lower Cover	1
4	A172 1483	Key-top Start	1
5	A172 1485	Key-top 10 Keys	1
6	A172 1486	Key-top Interrupt	1
7	A172 1488	Key-top Memory Call	1
8	A172 1489	Key-top Program	1
9	A172 1490	Key-top Color Adjust	1
10	A172 1492	Key-top Option	1
11	A172 1503	LCD Harness (A172)	1
11	A172 1533	LCD Harness (A199)	1
12	A172 1554	Operation Panel Board - Color (A172)	1
12	A172 1557	Operation Panel Board - Mono (A199)	1
13	A172 7400	Rom Board - Color (A172)	1
13	A172 7401	Rom Board - Mono (A199)	1
14	A172 7320	Operation Panel Cover (115V)	1
14	A172 7338	Operation Panel Cover (230V)	1
15	A172 7340	Key-top Clear Mode	2
16	A172 1580	Editor Pen	1
17	A172 5392	Operation Panel Harness - IPU 1	1
18	A172 1491	Key-top Inishraise	1
19	A172 7380	SCU Harness	1
20	A172 1497	Left Guide Bracket	1
21	A172 1585	Right Guide Bracket	1
22	A172 1576	Grounding Wire	1
23	A172 1481	Dial Key	1
24	AX30 0004	LCD Display - Color	1
24	A166 5312	LCD Display - Mono	1

Index No.	Part No.	Description	Q ty Per Assembly
25	A172 1570	Touch Panel (Color)	1
25	A166 5314	Touch Panel (Mono)	1
26	A172 1472	Shealding Plate	1
27	A172 1471	Sheet OP-2	1
28	A172 1473	Sheet OP-1	1
29	A172 1496	Sheet	1
30	A172 1470	LED Lens	6
31	A172 7411	IC - UVEPROM 4M X8 120NS (IC1)(English)	1
32	A172 7413	IC - UVEPROM 4M X8 120NS (IC3)(English)	1
33	A172 7414	IC - UVEPROM 4M X8 120NS (IC4)(English)	1
34	A172 7416	IC - UVEPROM 4M X8 120NS (IC6)(English)	1
35	A172 7417	IC - UVEPROM 4M X8 120NS (IC7)(English)	1
36	A172 7418	IC - UVEPROM 4M X8 120NS (IC8)(English)	1
37	A172 1500	Operation Key Board - Color	1
37	A172 1530	Operation Key Board - Mono	1
101	0801 1252	P-tight - M3x6	
102	0802 5146	Tapping Screw - M3x8	
103	0802 5182	Tapping Screw - M3x8	

4. Optics Section 1 (A172/A199)

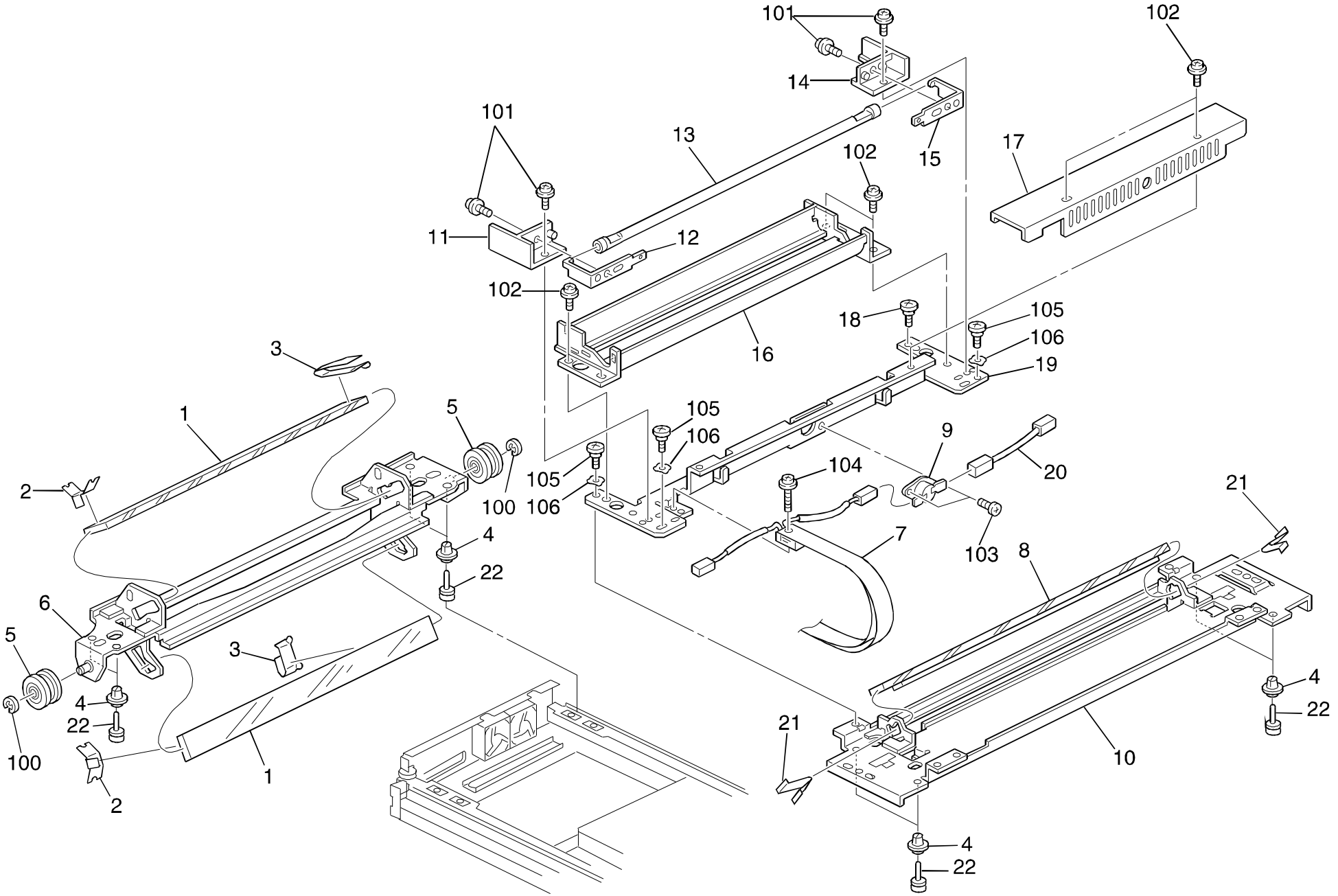


4. Optics Section 1 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A109 1879	Scale Bracket	1
2	A109 1886	Right Stay	1
3	A172 1132	Lower Cover - Operation Panel	1
4	A069 1882	Exposure Glass Holder	4
5	AW02 0067	Photointerruptor - EE-SX4119-P15	1
6	A048 1870	Scanner Motor Pulley	1
7	A109 1833	Upper Cover - Scanner Drive	1
8	AA14 0526	Drive Shaft	1
9	AA04 3360	Timing Belt - 200	1
10	AB03 0453	Timing Pulley - 48Z	1
11	5215 1924	Cushion	2
12	A069 5352	Ground Wire - Scanner	1
13	A109 1842	Scanner Drive Stepping Motor - DC24V	1
14	A134 1724	Cushion - Stepper Motor	1
15	AB03 0452	Timing Pulley - 24Z	1
16	H081 2118	Pressure Spring	1
17	A109 1832	Scanner Drive Bracket	1
18	AA05 0082	Scanner Drive Wier - Rear Right	1
19	A109 1835	Lower Cover - Scanner Drive	1
20	AA05 1019	Wire Stopper	1
21	AA05 0081	Scanner Drive Wire - Front Right	1
22	5361 2080	Plate : Wire Clamp	2
23	AA05 0080	Scanner Drive Wire - Rear Left	1
24	AA06 0083	Tension Wire Spring	1
25	AA05 0079	Scanner Drive Wire - Front Left	1
26	AA15 0266	Seal - 0.1x29x100	1
27	A172 1129	Operation Panel Left Bracket	1
28	A109 1124	Right Bracket - Operation Panel	1
29	5894 2540	Arm Screw	1

Index No.	Part No.	Description	Q ty Per Assembly
100	0434 0060B	Philips Tapping Screw - M4x6	
101	0313 0050B	Philips Pan Head Screw - M3x5	
102	0314 0120B	Philips Pan Head Screw - M4x12	
103	0574 0060E	Hexagon Headless Set Screw - M4x6	
104	0807 4076	Washer - 8.2x6.1x0.3mm	
105	0805 3145	Ball Bearing - 6x12x4mm	
106	0807 4047	Wave Washer - 6mm	
107	0720 0040B	Retaining Ring - M4	
108	0951 4008B	Philips Screw With Washer - M4x8	
109	0314 0080B	Philips Pan Head Screw - M4x8	
110	0344 0060F	Philips Truss Head Screw - M4x6	
111	0951 4006B	Philips Screw With Washer - M4x6	
112	1105 0310	Wire Clamp	

5. Optics Section 2 (A172/A199)

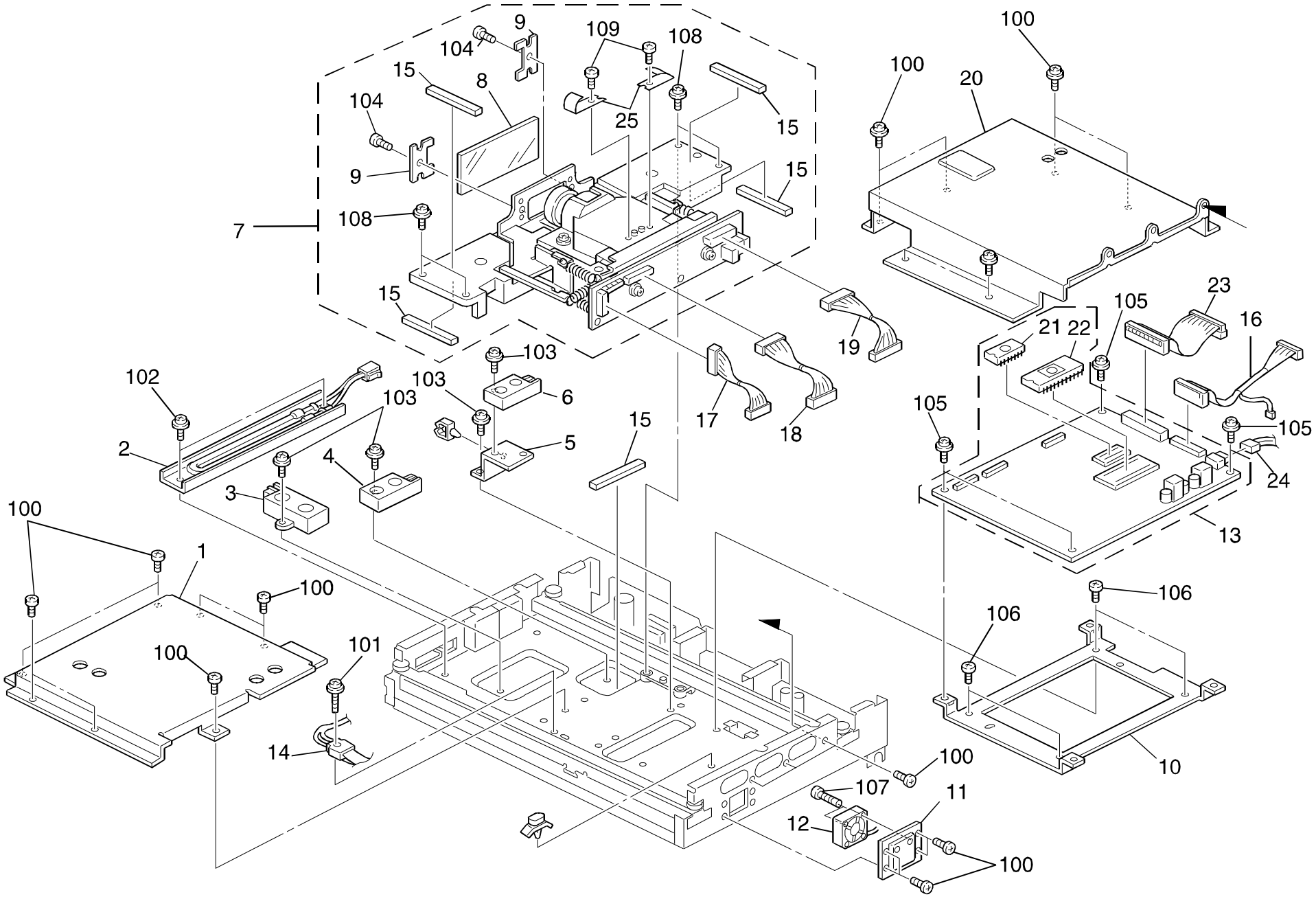


5. Optics Section 2 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A109 1922	Second Mirror Ass y	2
2	A006 1721	Front Spring Plate	2
3	AC03 5051	Spring Plate - 2nd Mirror	2
4	A069 1883	Shoe - Scanner	8
5	AB03 2041	Pulley - 26Z	2
6	A109 1741	2nd Scanner Ass y	1
7	A109 5378	Exposure Lamp Harness (115V)	1
7	A109 5380	Exposure Lamp Harness - 220V	1
8	A109 1924	1st Mirror	1
9	AW11 0017	Thermostat - 140 C - AC120V 15A	1
10	A109 1731	1st Scanner Ass y	1
11	A109 1715	Front Terminal Holder	1
12	A109 1717	Front Terminal - Exposure Lamp	1
13	**AX52 0030**	**Exposuer Lamp - 75V 200W**	**1**
14	A109 1711	Rear Terminal Holder	1
15	A109 1713	Rear Terminal - Exposure Lamp	1
16	A172 1700	Reflector Ass y	1
17	A109 1707	Reflector Cover	1
18	AA14 3025	Stepped Screw - M3	1
19	A109 1708	Reflector Bracket	1
20	A109 5377	Exposure Lamp Relay Harness	1
21	A048 1721	Spring Plate A	2
22	A096 1873	Scanner Shoe Pin	8

Index No.	Part No.	Description	Q ty Per Assembly
100	0720 0050B	Retaining Ring - M5	
101	0952 3008B	Screw - M3x8	
102	0951 3006B	Philips Screw With Flat Washer - M3x6	
103	0313 0060B	Philips Pan Head Screw - M3x6	
104	0952 3012B	Screw - M5x12	
105	AA14 3025	Stepped Screw - M3	
106	0807 3109	Spring Washer - M4	

6. Optics Section 3 (A172/A199)

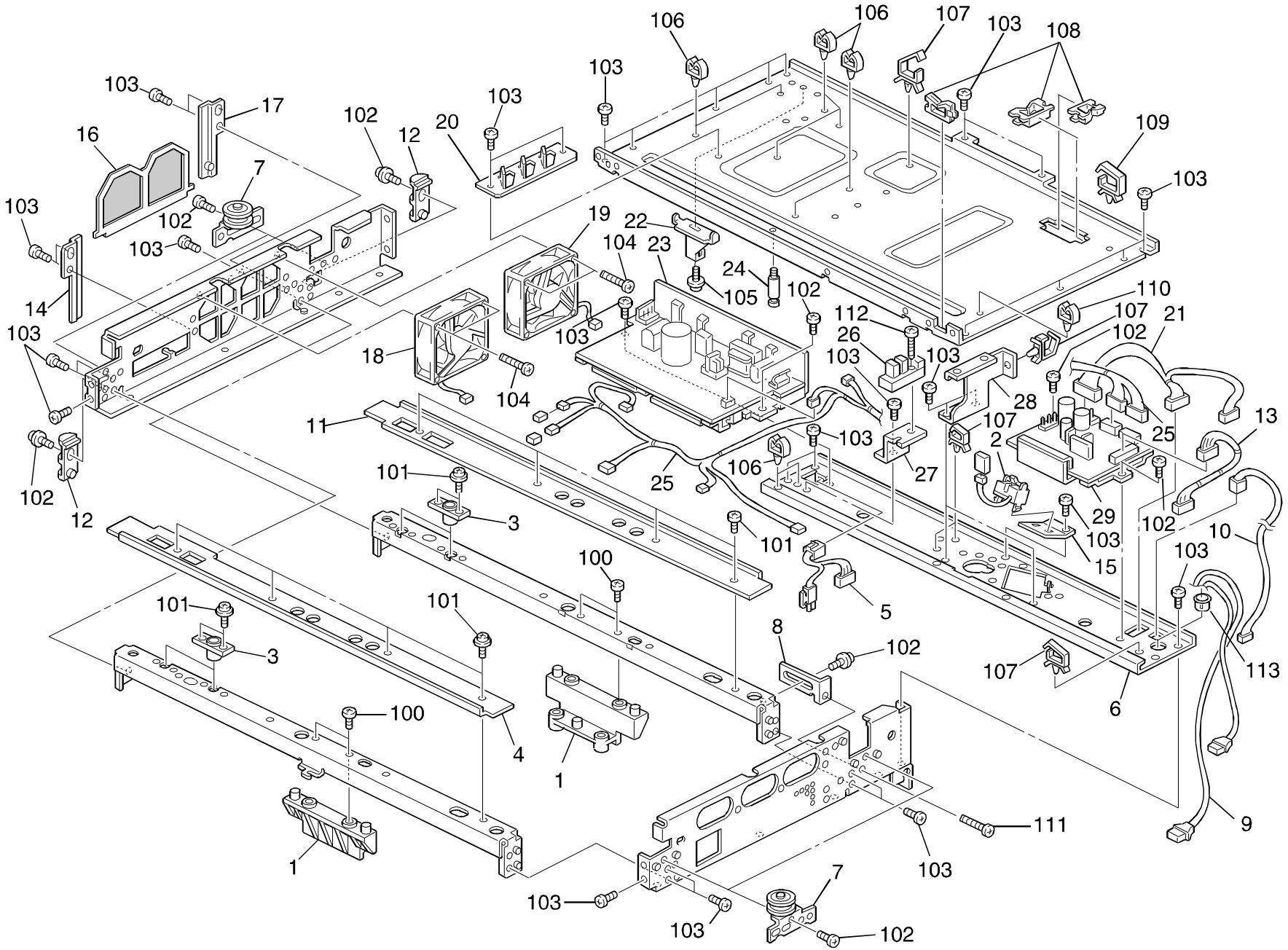


6. Optics Section 3 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A109 1806	Original Sensor Cover	1
2	AX40 0052	Anti-condensation Heater - 115V 18W	1
2	AX40 0053	Anti-condensation Heater - 240V 18W	1
3	AW01 0034	Original Width Sensor	1
4	AW01 0037	Original Length Sensor	1
5	A109 1882	Original Sensor Bracket	1
6	AW01 0033	Original Sensor Ass y - H=3-50	1
7	A172 1636	Lens Holder Unit	1
8	AA01 1044	Optical Filter	1
9	A109 1789	Spring Plate	2
10	A172 1853	Scanner Control Board Bracket	1
11	A109 1884	Optics Exhaust Bracket	1
12	AX64 0045	Cooling Fan Motor - DC24V 2.40W	1
13	A172 5291	Scanner Control Board	1
14	A109 5378	Exposure Lamp Harness	1
15	A109 1785	Spacer - 9.5x9.5x72	5
16	A109 5341	Scanner Interface Harness	1
17	A109 5336	CCD Harness - 2	1
18	A109 5335	CCD Harness - 1	1
19	A109 5344	CCDHarness 3 - EXP	1
20	A109 1805	Scanner Control Board Cover	1
21	A172 5146	IC - UVEPROM 512K X8 120NS	1
22	A172 5145	IC - UPD78P312ACW	1
23	A109 5338	IPU Harness	1
24	AW03 0035	Optics Fiber Cable - 900mm	1
25	A109 1782	CCD Grounding Plate	2

Index No.	Part No.	Description	Q ty Per Assembly
100	0434 0060B	Philips Tapping Screw - M4x6	
101	0952 3012B	Screw - M5x12	
102	0957 4008B	Philips Screw W/F Washer - M4x8	
103	0951 3008B	Philips Screw With Flat Washer - M3x8	
104	0313 0050B	Philips Pan Head Screw - M3x5	
105	0951 3006B	Philips Screw With Flat Washer - M3x6	
106	0433 0050B	Tapping Screw - M3x5	
107	0951 4030B	Screw - M4x30	
108	0951 4010B	Philips Screw With Washer - M4x10	
109	0413 0062W	Tapping Screw - M3x6	

7. Optics Section 4 (A172/A199)

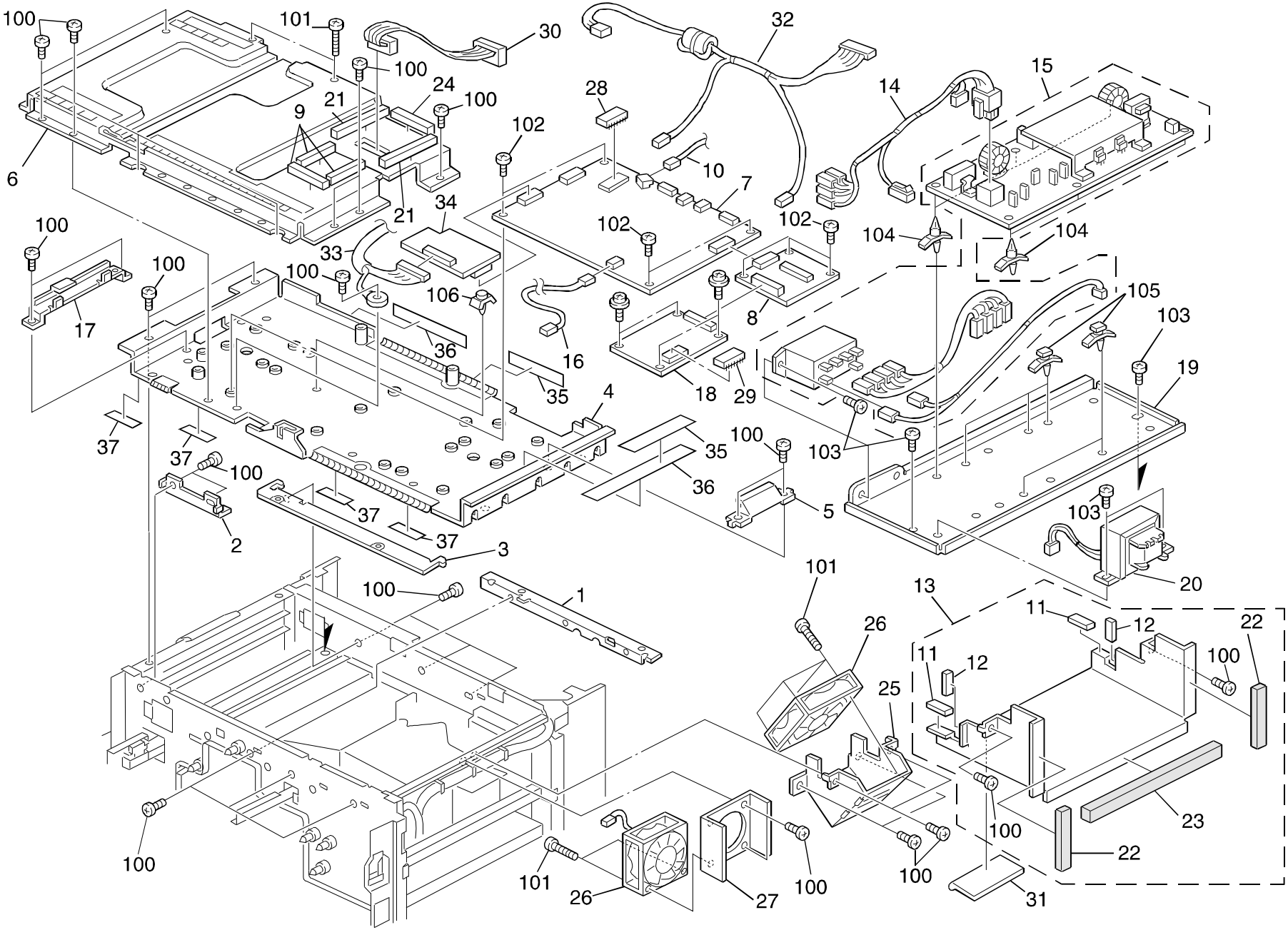


7. Optics Section 4 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A012 1752	Lens Bracket Block	2
2	AW02 0065	Photointerruptor	1
3	A109 1867	Pin Guide	4
4	A109 1869	Front Slide Rail	1
5	A109 5376	Scanner AC Harness	1
6	A109 1831	Scanner Drive Board Bracket	1
7	A060 1822	Scanner Wire Pulley	4
8	A109 1818	Wire Adjuster	1
9	AW03 0034	Optics Fiber Cable - 1400mm	1
10	A172 5339	Operation Panel Harness - DC	1
11	A109 1868	Rear Slide Rail	1
12	A060 1824	Scanner Wire Pulley	2
13	A109 5341	Scanner Interface Harness	1
14	A109 1844	Dust Filter Front Guide	1
15	A060 1812	Sensor Bracket	1
16	**AA01 2094**	**Dust Filter - EFA-15N**	**1**
17	A109 1845	Dust Filter Rear Guide	1
18	AX64 0048	Dev. Exhaust Fan Motor - DC24V 2.88W	1
19	AX64 0047	Dev. Exhaust Fan Motor - DC24V 3.36W	1
20	A109 1854	Scanner Louver	1
21	A109 5340	Scanner DC Harness	1
22	A109 5711	IPU Unit Position Plate	1
23	AZ23 0037	Lamp Regulator Board (115V)	1
23	AZ23 0047	Lamp Regulator - 230V	1
24	AA14 3419	Support Stud	1
25	A109 5342	Scanner Drive Harness	1
26	AW02 0061	Photointerruptor - EE - SX4019-P1	1
27	A109 1881	H.P Sensor Bracket	1
28	A109 1885	Support Plate	1
29	A172 5151	Scanner Control Board	1

Index No.	Part No.	Description	Q ty Per Assembly
100	0314 0080B	Philips Pan Head Screw - M4x8	
101	0951 3006B	Philips Screw With Flat Washer - M3x6	
102	0951 4008B	Philips Screw With Washer - M4x8	
103	0434 0060B	Philips Tapping Screw - M4x6	
104	0314 0300B	Philips Pan Head Screw - M4x30	
105	0313 0060B	Philips Pan Head Screw - M3x6	
106	1105 0199	Clamp	
107	1105 0310	Wire Clamp	
108	1105 0113	Edge - P108	
109	1105 0292	Wire Saddle	
110	1105 0193	Nylon Stud	
111	0314 0200B	Philips Pan Head Screw - M4x20	
112	0314 0120B	Philips Pan Head Screw - M4x12	
113	1106 0310	Bushing	

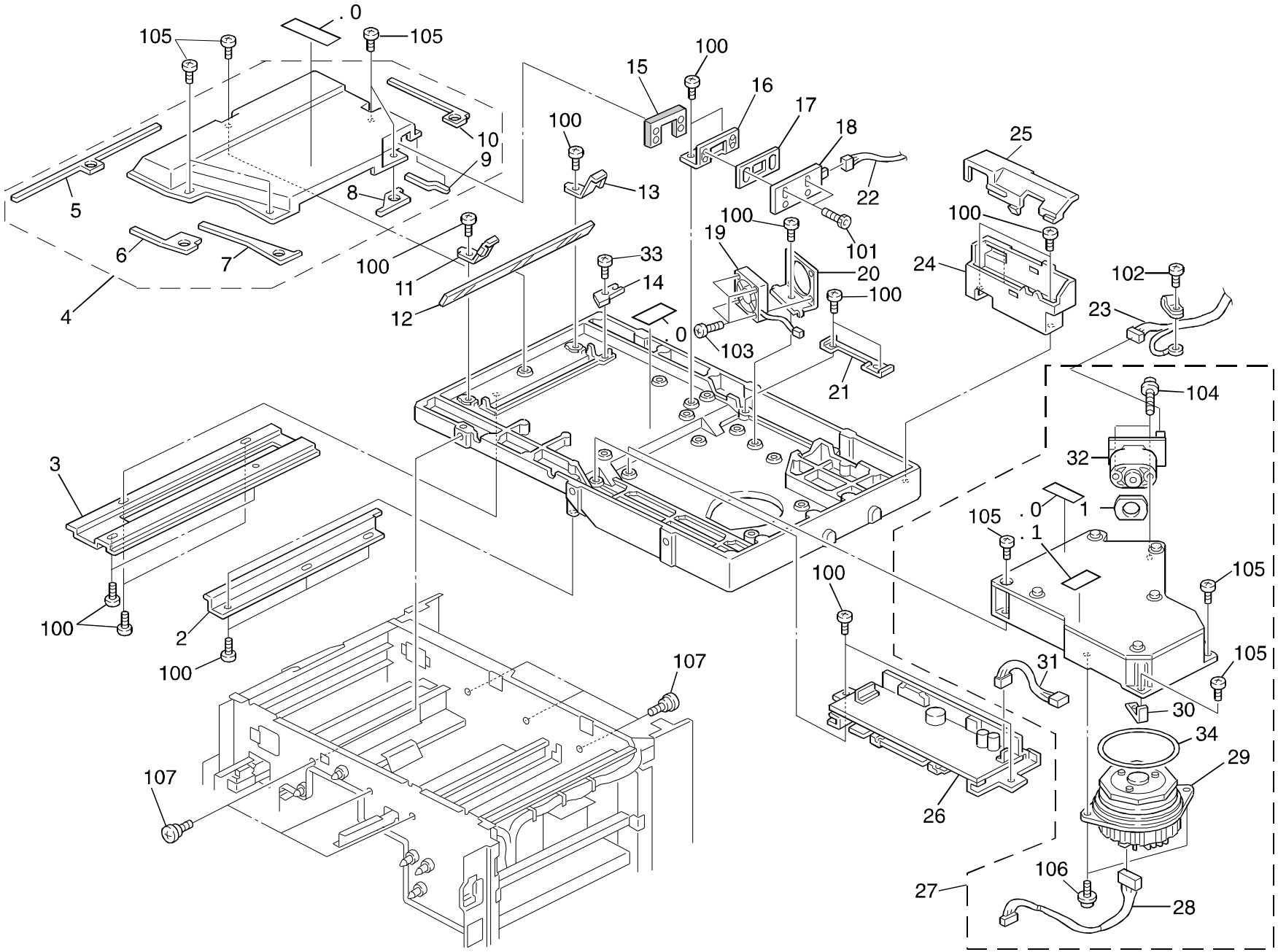
8. Printer Section 1 (A172/A199)



8. Printer Section 1 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A109 5722	Front Guide Plate - IPU	1
2	A109 5724	IPU Fixing Bracket	1
3	A109 5723	Rear Guide Plate - IPU	1
4	A172 5701	IPU Base Plate	1
5	A109 5705	IPU Cooling Fan Louver	1
6	A172 5707	IPU Cover	1
7	A172 5242	IPU Board	1
8	A109 5236	IPU Interface Board	1
9	A109 5731	IPU Cover Seal	3
10	AW03 0029	Fiber Cable - 800	1
11	AA15 1866	Seal - 3x7x30	2
12	AA15 1867	Seal - 3x7x23.5	2
13	A109 2080	Optics Cooling Fan Duct	1
14	A109 5373	Front AC Harness	1
15	A172 5471	AC Drive Board - 115V	1
15	A172 5671	AC Drive Board - 230V	1
16	A172 5393	Operation Panel Harness - IPU 2	1
17	A172 5736	Harness Guide	1
18	A166 5080	IDU Board	1
19	A109 5745	AC Drive Board Bracket	1
20	AZ02 0006	Coil - 4.6mm 5A	1
21	A109 5720	Seal - 9.5x9.5x125	2
22	AA15 1868	Seal - 3x7x64	2
23	AA15 1869	Seal - 3x7x17.3	1
24	A109 5721	Seal - 9.5x9.5x66	1
25	A109 5729	IPU Cooling Fan Bracket	1
26	AX64 0041	Cooling Fan Motor - DC24 7.64W	2
27	A109 5730	Polygon Motor Fan Bracket	1
28	A172 5207	IC - UVEPROM 4M X16 120NS	1
29	A166 5084	IC - UVEPLROM 1M X16 120NS	1
30	A109 5338	IPU Harness	1
31	AA15 1870	Seal - 3x20x76	1
32	A109 5309	IPU Board Relay Harness	1
33	A172 5326	IPU Harness	1
34	A172 5217	DE I/F Board	1
35	A109 5733	Gasket - 210	1
36	A109 5732	Gasket - 340	1
37	A109 5734	Gasket - 85	1
100	0434 0080B	Philips Tapping Screw - M4x8	
101	0314 0300B	Philips Pan Head Screw - M4x30	
102	0314 0080M	Philips Pan Head Screw - M4x8	
103	0354 0060B	Screw - M4X6	
104	1105 0193	Nylon Stud	
105	1105 0409	Spacer	
106	1105 0246	Spacer	

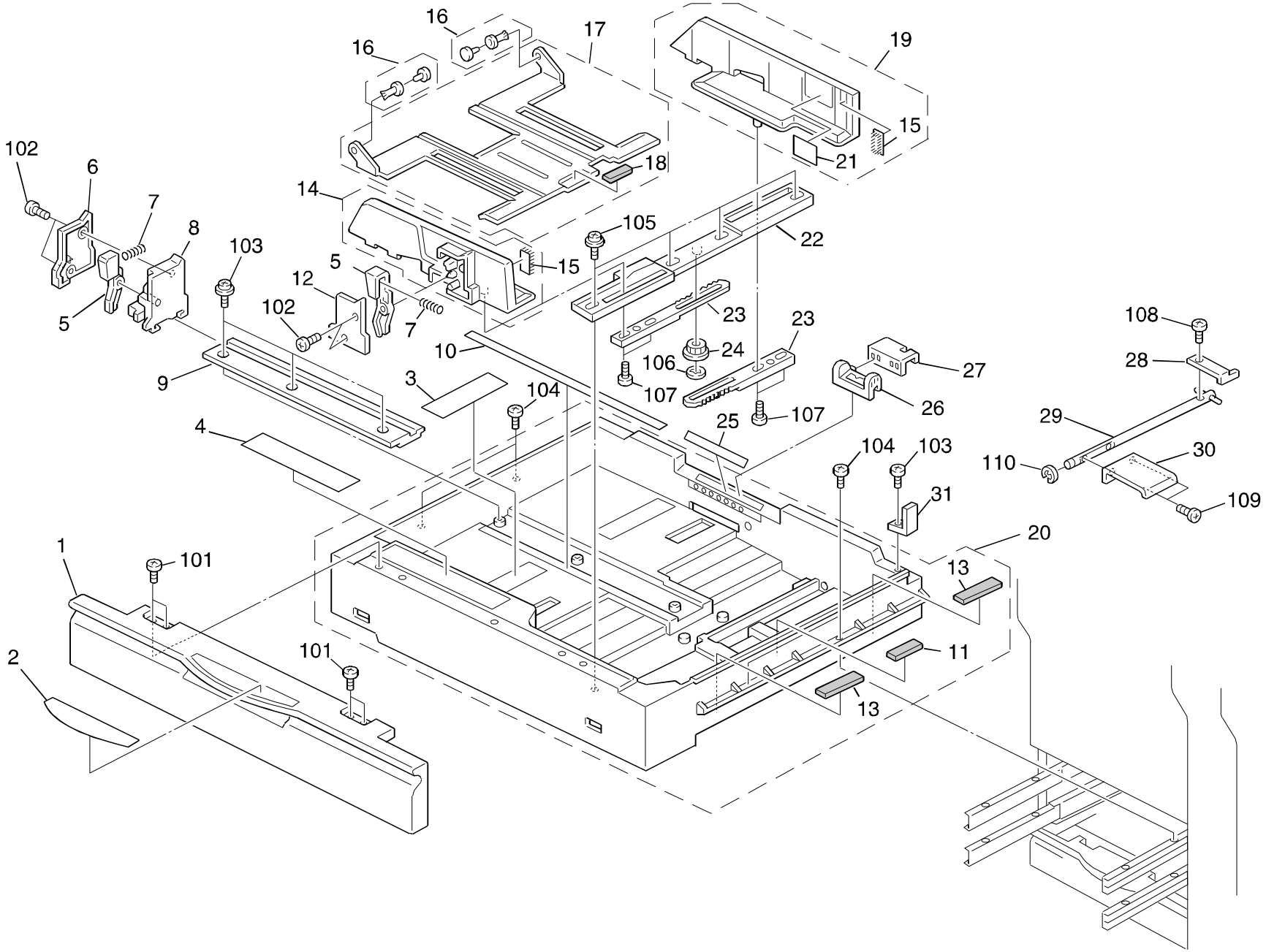
9. Printer Section 2 (A172/A199)



9. Printer Section 2 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	AA15 2094	Seal - 22x38x2	1
2	A109 2066	Right Rail	1
3	A109 2065	Left Rail	1
4	A109 2136	Mirror Cover	1
5	AA15 1855	Mirror Seal 5	1
6	AA15 1852	Mirror Seal 2	1
7	AA15 1854	Mirror Seal 4	1
8	AA15 1853	Mirror Seal 3	1
9	AA15 1856	Mirror Seal 6	1
10	AA15 1851	Mirror Seal 1	1
11	AC03 5021	Front Spring Plate	1
12	A109 2132	Drum Mirror Ass y	1
13	AC03 5020	Rear Spring Plate	1
14	A109 2069	Mirror - Synchronizing	1
15	AA15 0347	Shielding Sheet - 21.5x41	1
16	A109 2128	Diode Bracket	1
17	AA15 1858	Seal - 5x18x40	1
18	A109 5171	Laser Synchronizing Detector Board	1
19	AX64 0045	Cooling Fan Motor - DC24V 2.40W	1
20	A109 2072	LD Cooling Fan Bracket	1
21	A109 2070	Synchronizing Harness Bracket	1
22	A109 5333	Synchronizing Detector Harness	1
23	A109 5332	LD Unit Harness	1
24	A109 5718	IPU Lower Harness Cover	1
25	A109 5719	IPU Upper Harness Cover	1
26	AY10 0002	Polyg0n Motor Board	1
27	A109 2159	Optical Housing Unit	1
28	A060 5547	Polygon Motor Harness	1
29	AX06 0094	Polygon Motor - DC24V, 24W	1
30	A037 2113	0ptical Housing Spacer	1
31	A109 5312	Relay Harness - Polygon Motor	1
32	A109 2160	LD Unit	1
33	5203 2679	Pinion Tightening Screw - M4x5	1
34	AA15 2061	O-ring 83	1
35	AA00 0602	Caution Decal - LD Unit Cover	3
36	AA00 0445	Caution Decal - LD Unit	1
100	0354 0060B	Screw - M4X6	
101	0593 0060E	Bolt - M3x6	
102	0953 4008M	Screw - M4x8	
103	0951 3014B	Philips Screw With Washer - M3x14	
104	0951 3020B	Philips Screw With Flat Washer - M3x8	
105	0354 0100B	Screw - M4x10	
106	0960 4008B	Philips Flange Screw - M4x8	
107	0803 0020	Positioning Pin	

10. 1st And 2nd Paper Feed Tray (A172/A199)

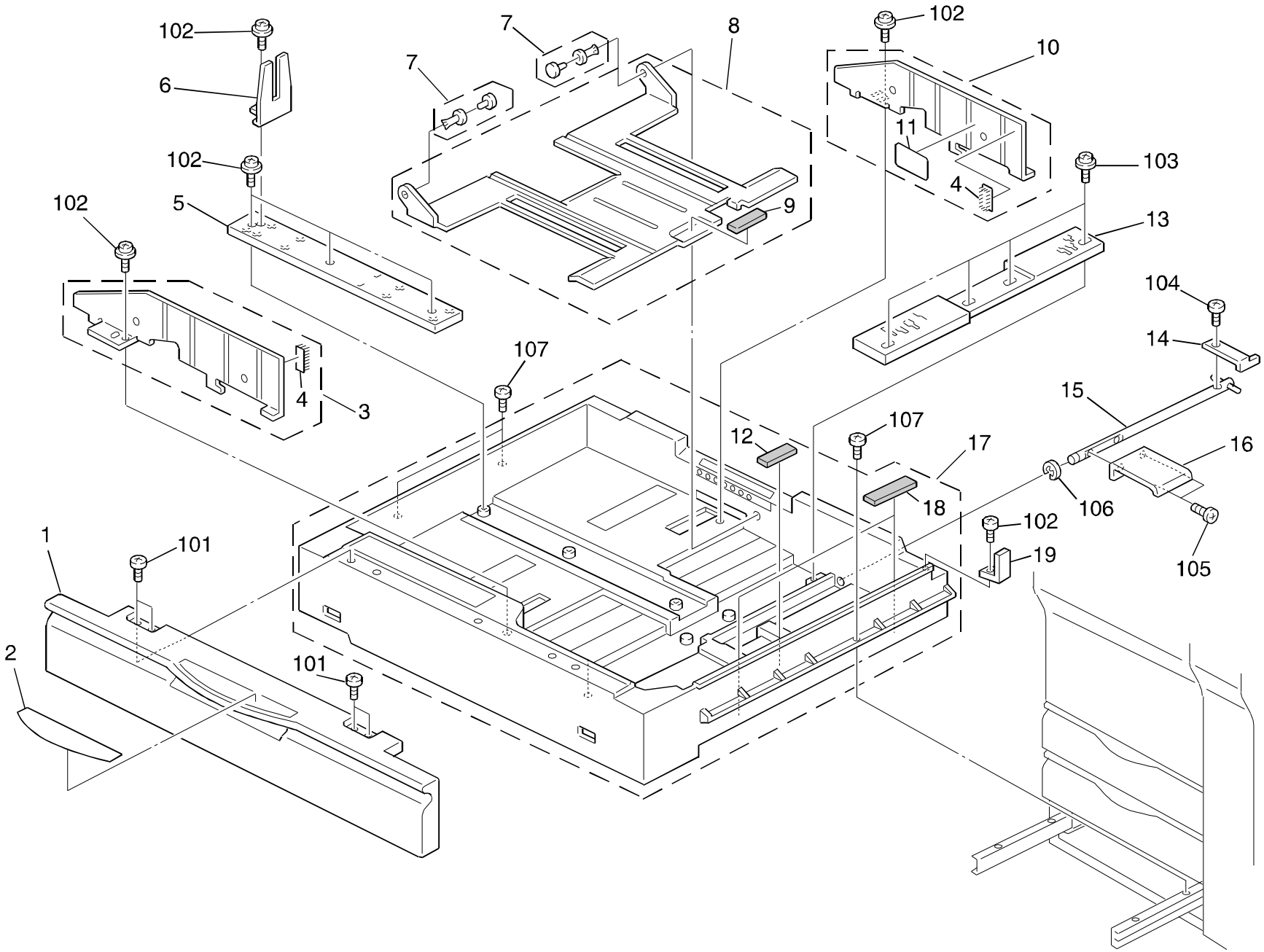


10. 1st And 2nd Paper Feed Tray (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A172 2829	Paper Tray Cover	1
2	AA00 0174	Decal - Tray Cover 1st	1
2	AA00 0175	Decal - Paper Tray Cover No2	1
3	AA00 2177	Decal - Side Fence - LT	1
3	AA00 2176	Decal - Side Fence - A4	1
4	AA00 0134	Decal - Universal Tray	1
5	A096 6537	Stopper Lever	2
6	A096 6563	End Fence Cover	1
7	AA06 6551	Stopper Spring - 24mm	2
8	A096 6562	End Fence	1
9	A096 6564	End Fence Plate	1
10	AA00 2179	Decal - End Fence LT	1
10	AA00 2178	Decal - End Fence - A4	1
11	AA15 1804	Lever Cushion	1
12	A096 6536	Side Fence Cover	1
13	AA15 1805	Bottom Plate Cushion	2
14	A096 6534	Front Side Fence	1
15	A096 6553	Side Fence Pad	2
16	A048 2838	Nylon Rivet	2
17	A096 6556	Tray Bottom Plate	1
18	AF01 3002	Bottom Plate Pad	1
19	A096 6541	Rear Side Fence	1
20	A096 6520	Paper Tray	1
21	AA00 2010	Decal - Paper Level	1
22	A096 6545	Side Fence Plate - LT	1
22	A096 6544	Side Fence Plate - A4	1
23	A096 6539	Side Fence Gear	1
24	AB01 3492	Gear - 16Z	1
25	AA00 2181	Decal - LT	1
25	AA00 2184	Decal - A4	1
26	A096 6577	Size Sensor Slider	1
27	A096 6578	Size Sensor Plate	1
28	A096 6527	Paper Guide Feeler	1
29	A096 6524	Lift Shaft	1
30	A096 6526	Lift Lever	1

Index No.	Part No.	Description	Q ty Per Assembly
31	A176 6695	Misfeed Removal Guide	1
101	0414 0082F	Philips Truss Head Screw - M4x8	
102	0413 0082B	Tapping Screw - M3x8	
103	0965 4008B	Tapping Screw - M4x8	
104	0354 0050F	Philips Pan Head Bind Screw - M4x5	
105	0951 3008B	Philips Screw With Flat Washer - M3x8	
106	0805 0073	Retaining Ring - M5	
107	0434 0082F	Tapping Screw - M3x10	
108	0313 0060B	Philips Pan Head Screw - M3x6	
109	0314 0080B	Philips Pan Head Screw - M4x8	
110	0720 0060B	Retaining Ring - M6	

11. 3rd Paper Feed Tray (A172/A199)

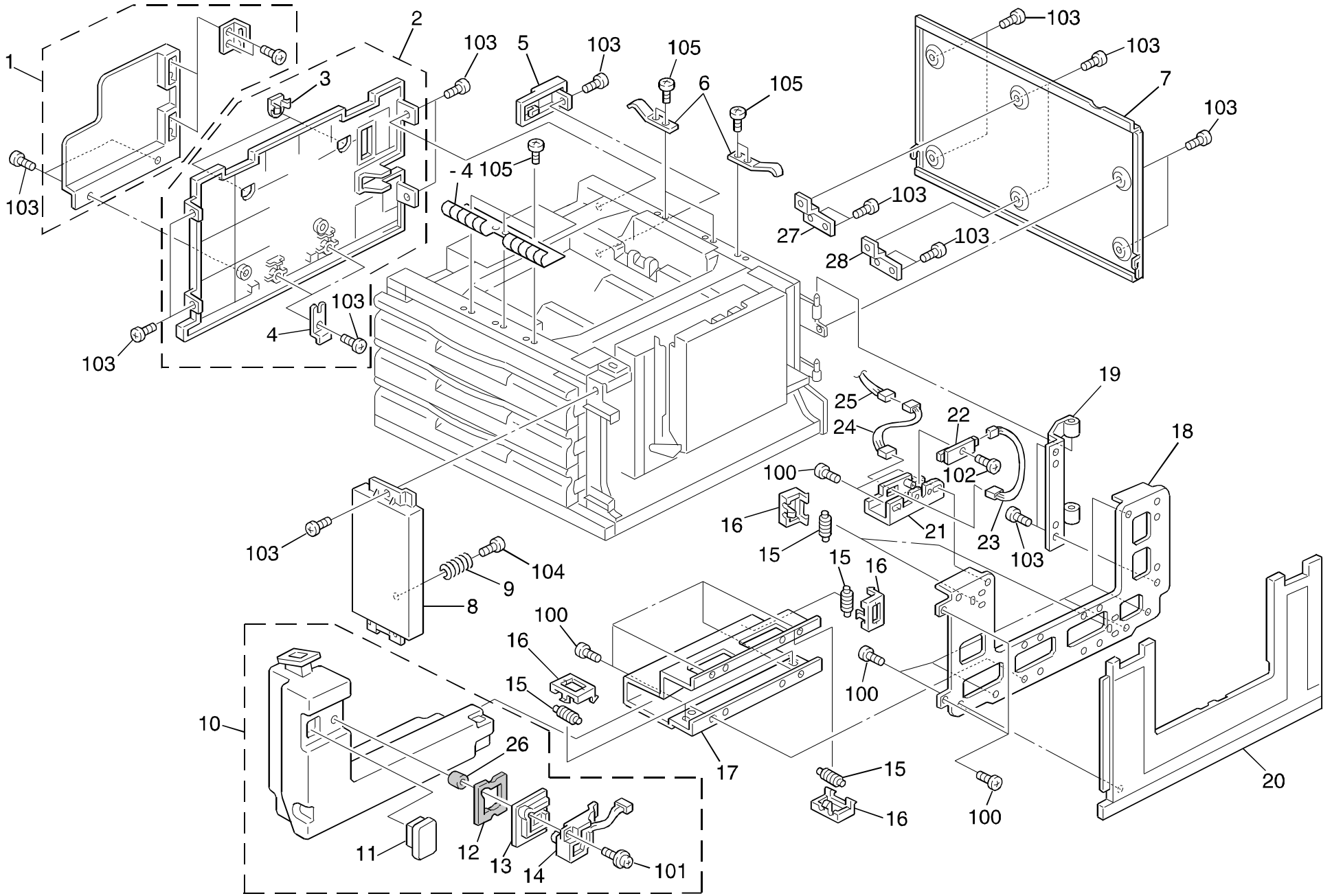


11. 3rd Paper Feed Tray (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A172 2829	Paper Tray Cover	1
2	AA00 0176	Decal - Paper Tray Cover No3	1
3	A096 6549	Front Side Fence	1
4	A029 7904	Pad - Cff	2
5	A096 6568	Position Plate - End Fence	1
6	AF01 7010	End Fence	1
7	A048 2838	Nylon Rivet	2
8	A096 6556	Tray Bottom Plate	1
9	AF01 3002	Bottom Plate Pad	1
10	A096 6550	Rear Side Fence	1
11	AA00 2010	Decal - Paper Level	1
12	AA15 1804	Lever Cushion	1
13	A096 6551	Position Plate - Side Fence	1
14	A096 6527	Paper Guide Feeler	1
15	A096 6524	Lift Shaft	1
16	A096 6526	Lift Lever	1
17	A096 6520	Paper Tray	1
18	AA15 1805	Bottom Plate Cushion	2
19	A176 6695	Misfeed Removal Guide	1

Index No.	Part No.	Description	Q ty Per Assembly
101	0414 0082F	Philips Truss Head Screw - M4x8	
102	0965 4008B	Tapping Screw - M4x8	
103	0952 3008B	Screw - M3x8	
104	0313 0060B	Philips Pan Head Screw - M3x6	
105	0314 0080B	Philips Pan Head Screw - M4x8	
106	0720 0060B	Retaining Ring - M6	
107	0354 0050F	Philips Pan Head Bind Screw - M4x5	

12. Paper Supply Unit 1 (A172/A199)

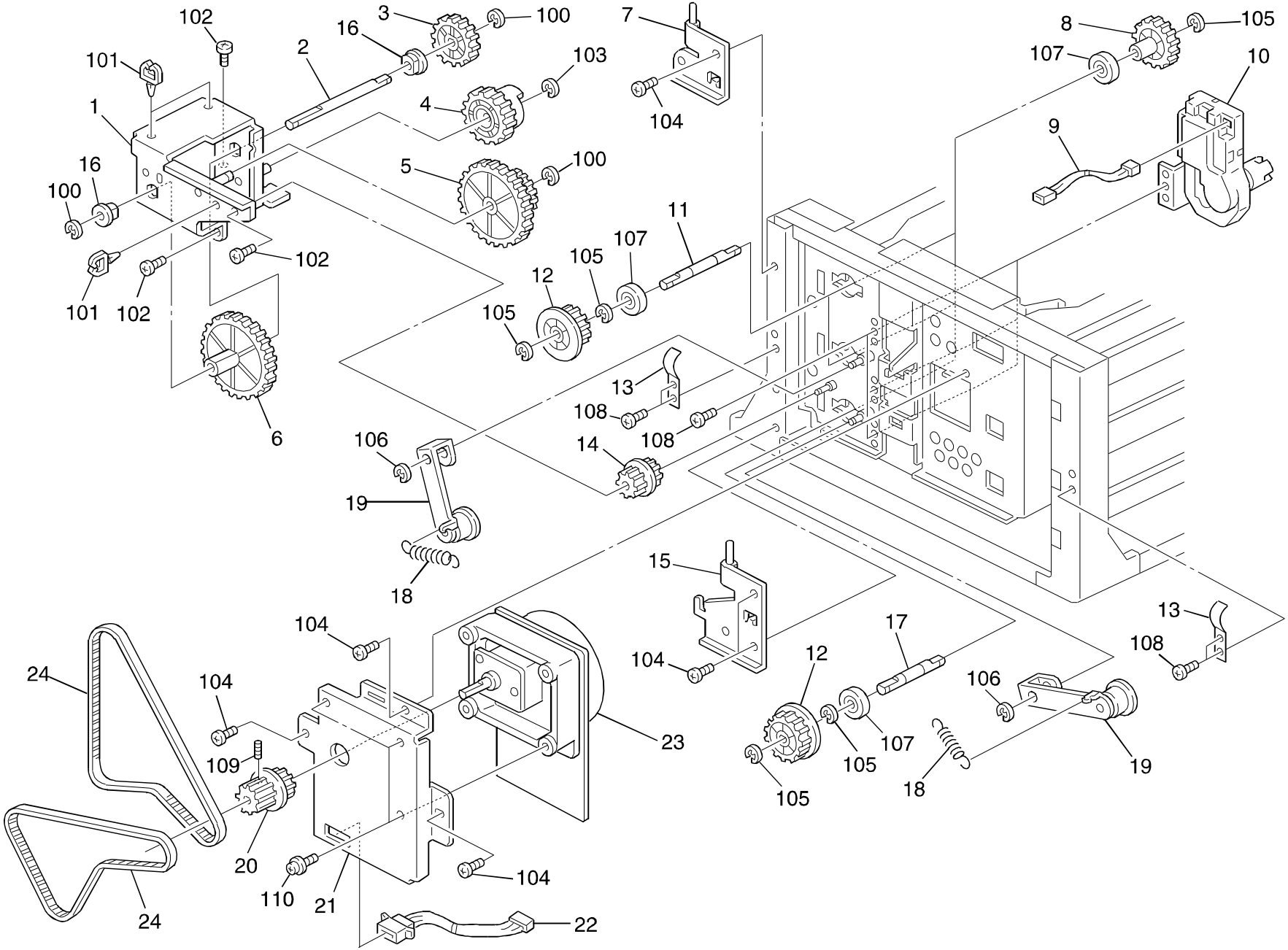


12. Paper Supply Unit 1 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A172 1330	Operation Instructions Holder	1
2	A172 1315	Left Lower Cover Ass y - LCT	1
3	A172 1279	Large Cap - Sorter	2
4	A513 1338	Left Cover Bracket	2
5	A172 1317	Left Lower Rear Cover - LT	1
6	A027 1673	Spring Plate	4
7	A172 1305	LCT Rear Cover	1
8	A172 1326	Front Right Lower Cover - LCT	1
9	AA06 3492	Spring	1
10	A513 6600	Toner Collection Bottle	1
11	AA03 6013	Toner Collection Cap	1
12	A007 3763	Adhesive Tape - Sensor Holder	1
13	A007 3762	Sensor Holder	1
14	A513 5403	Toner Overflow Sensor	1
15	A060 3826	Toner Collection Bottle Roller	6
16	A060 3827	Roller Holder	6
17	A513 6643	Collection Bottle Guide Plate	1
18	A513 6642	Right Side Plate	1
19	A513 6644	Right Lower Hinge - Tray Unit	1
20	A172 1321	Right Lower Cover - LCT	1
21	A513 6152	Humidity Sensor Holder	1
22	A109 5196	Humidity Sensor	1
23	A109 5362	Humidity Sensor Harness	1
24	A513 5364	Relay Harness - Humidity Sensor	1
25	A513 5351	Front Harness - Paper Feed Unit	1
26	A513 6603	Seal - Toner Overflow Sensor	1
27	A513 1180	Upper Stay - Rear Cover	1
28	A513 1181	Lower Stay - Rear Cover	1
29	A513 1185	Grounding Plate	1

Index No.	Part No.	Description	Q ty Per Assembly
100	0354 0060B	Screw - M4X6	
101	0965 3006W	Tapping Screw With Flat Washer - M3x6	
102	0353 0050B	Philips Truss Head Screw - M3x5	
103	0344 0060F	Philips Truss Head Screw - M4x6	
104	0414 0082B	Binding Self Tapping Screw - M4x8	
105	0433 0060B	Philips Tapping Screw - M3x6	

13. Paper Supply Unit 2 (A172/A199)

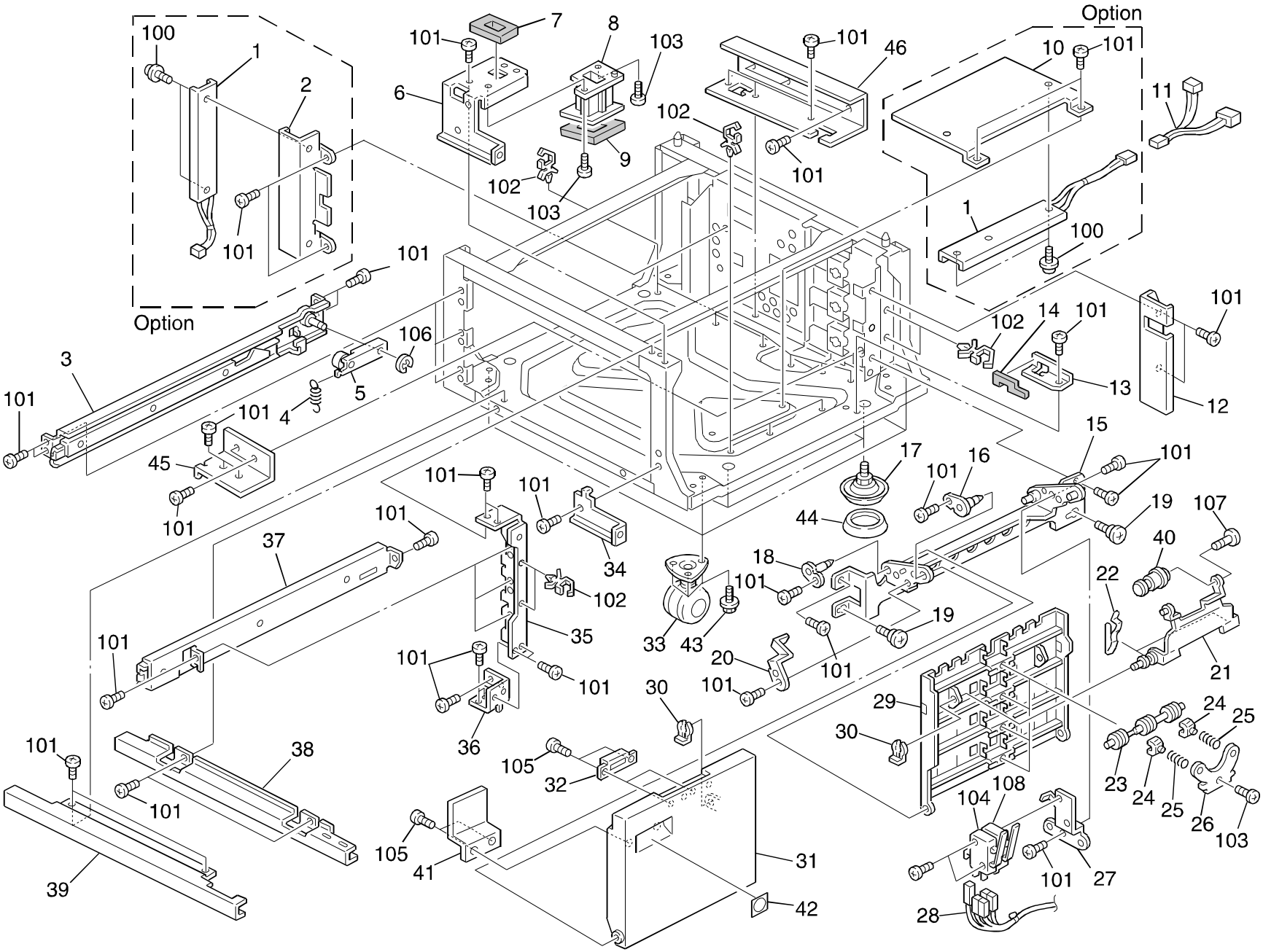


13. Paper Supply Unit 2 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A513 6622	Tray Unit Gear Holder	1
2	AA14 8403	Shaft	1
3	AB01 3856	Gear - 31Z	1
4	AB01 7325	Gear - 35Z	1
5	AB01 7324	Gear - 26Z/70Z	1
6	AB01 3855	Gear - 68Z	1
7	A513 1173	Upper Hinge - Paper Feed Unit	1
8	AB01 3781	Gear - 30Z	3
9	A513 5353	Relay Harness - Lift Motor	3
10	A513 2840	Paper Lift Motor - DC24V 3.6W	3
11	AA14 5223	Drive Shaft	2
12	AB03 0456	Timing Pulley - 30Z	3
13	A027 1673	Spring Plate	2
14	AB03 3058	Timing Pulley - 22Z	1
15	A513 1175	Lower Hinge - Paper Feed Unit	1
16	5053 0447	Bushing - 6mm	2
17	AA14 5224	Drive Shaft	1
18	AA06 0560	Release Spring	2
19	A513 2820	Belt Tightner	2
20	AB03 0449	Roller Drive Pulley	1
21	A513 2846	Paper Feed Motor Bracket	1
22	A513 5358	Relay Harness - Paper Feed Motor	1
23	AX06 0087	Papaer Feed Motor - DC22W	1
24	AA04 3239	Timing Belt - P3M6 486MM	2

Index No.	Part No.	Description	Q ty Per Assembly
100	0720 0040B	Retaining Ring - M4	
101	1105 0199	Clamp	
102	0434 0080B	Philips Tapping Screw - M4x8	
103	0720 0050E	Retaining Ring - M5	
104	0964 4008B	Tapping Screw With Flat Washer - M4x8	
105	0720 0060B	Retaining Ring - M6	
106	0720 0040B	Retaining Ring - M4	
107	0740 3008	Ball Bearing - 8x22x7	
108	0433 0060B	Philips Tapping Screw - M3x6	
109	0574 0060B	Hexagon Headless Set Screw - M4	
110	0951 4008B	Philips Screw With Washer - M4x8	

14. Paper Supply Unit 3 (A172/A199)

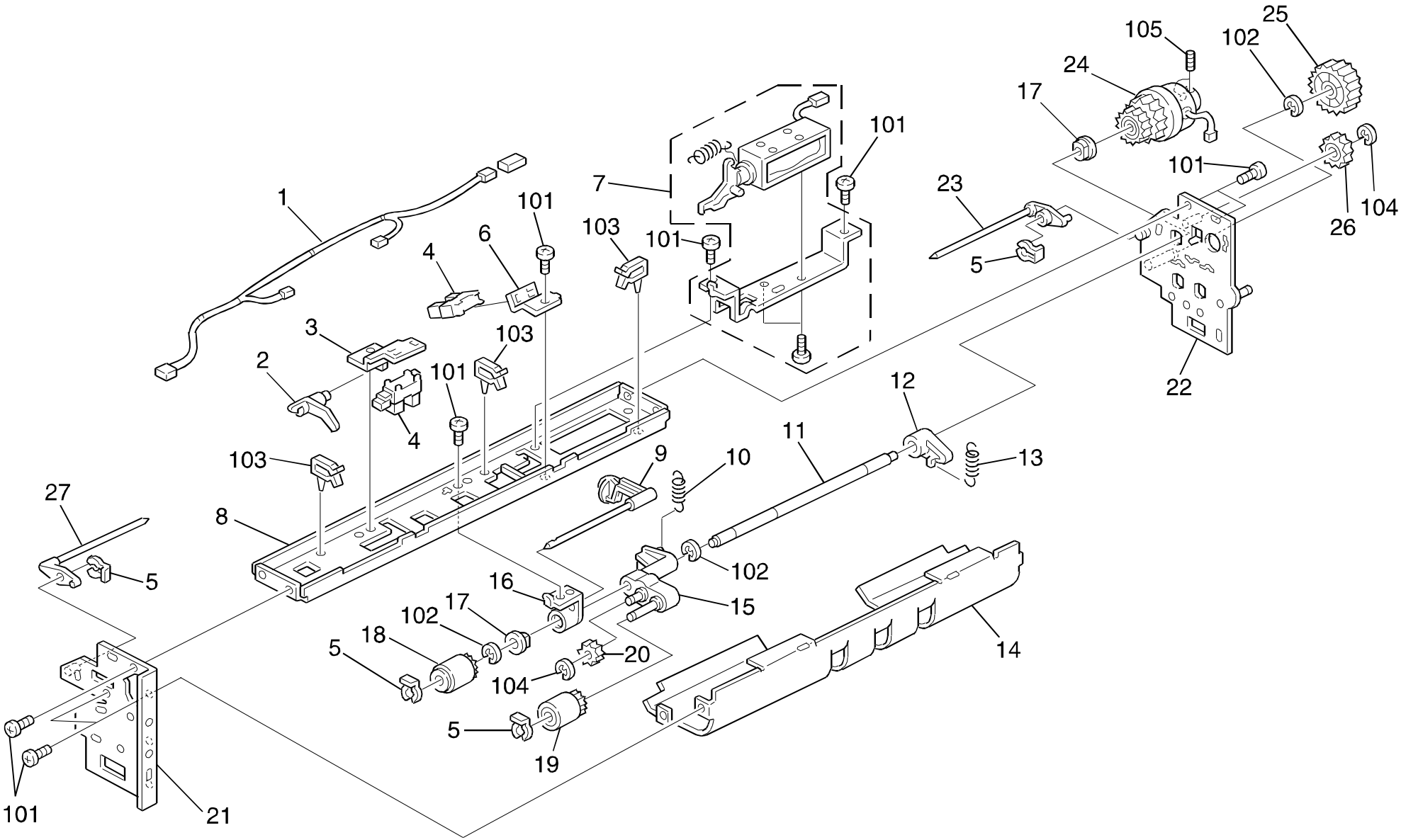


14. Paper Supply Unit 3 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	AX40 0052	Anti-condensation Heater - 115V 18W	2
1	AX40 0053	Anti-condensation Heater - 240V 18W	2
2	A513 2870	Upper Heater Bracket	1
3	A513 2861	Left Rail - Paper Tray	3
4	AA06 0534	Tray Lock Spring - 19mm	3
5	A096 6266	Tray Lock Arm	3
6	A513 6612	Joint Case Bracket	1
7	A513 6614	Upper Shielding Seal	1
8	A513 6613	Collection Joint Case	1
9	A513 6615	Lower Shielding Seal	1
10	A096 6100	Lower Heat Sink	1
11	A172 5383	Heater Harness - LCT	1
12	A513 2809	Rear Cover - Vertical Transport	1
13	A513 6652	Collection Bottle Stopper	1
14	A513 6653	Collection Bottle Cushion	1
15	A513 2760	Vertical Transport Guide Bracket	1
16	A513 2785	Guide Plate Rear Holder	1
17	5424 1064	Screw Stand	4
18	A513 2775	Guide Plate Front Holder	1
19	AA14 3074	Stepped Screw - M4x5	2
20	A513 2776	Guide Plate Stopper	1
21	A513 2782	Cover Release Plate	1
22	A513 2783	Spring Plate	2
23	AF02 0295	Vertical Driven Roller	4
24	AA08 0156	Bushing - M4	8
25	AA06 3487	Spring - 10mm	8
26	A513 2762	Pressure Plate	4
27	A513 2771	Switch Bracket - Vertical Transport	1
28	a513 5366	Relay Harness - Paper Tray Door SW.	1
29	A513 2752	Vertical Transport Guide	1
30	5447 2681	Snap Ring	5
31	A172 2780	Vertical Transport Cover	1
32	AG07 0004	Magnetic Catch	2
33	5415 1053	Caster	4
34	A513 6661	Cover Support Plate	1

Index No.	Part No.	Description	Q ty Per Assembly
35	A513 2801	Front Side Frame	1
36	A513 1036	Lower Front Right Bracket	1
37	A513 2850	Right Rail - Paper Tray	3
38	A513 1177	Lower Cover Bracket	1
39	A172 1327	Lower Cover - LCT	1
40	AA14 7674	Pin - 6x12.7	1
41	A513 2786	Support Cover	1
42	AA00 1346	Decal - Misfeed Removal A	1
43	5301 1662	Hexagon Bolt	12
44	AH01 3008	Leveling Foot Guide	4
45	A513 1034	Lower Rear Right Bracket	1
46	A513 1035	Lower Rear Left Bracket	1
100	0950 4010B	Sem,s Screw M4x10	
101	0434 0080B	Philips Tapping Screw - M4x8	
102	1105 0310	Wire Clamp	
103	0314 0060B	Philips Pan Head Screw - M4x6	
104	1204 2356	Micro Switch - AM51612A531	
105	0434 0082F	Tapping Screw - M3x10	
106	0720 0040B	Retaining Ring - M4	
107	0353 0050B	Philips Truss Head Screw - M3x5	
108	1204 2376	Microswitch : V-162-3C25	

15. Paper Feed Section 1 (A172/A199)

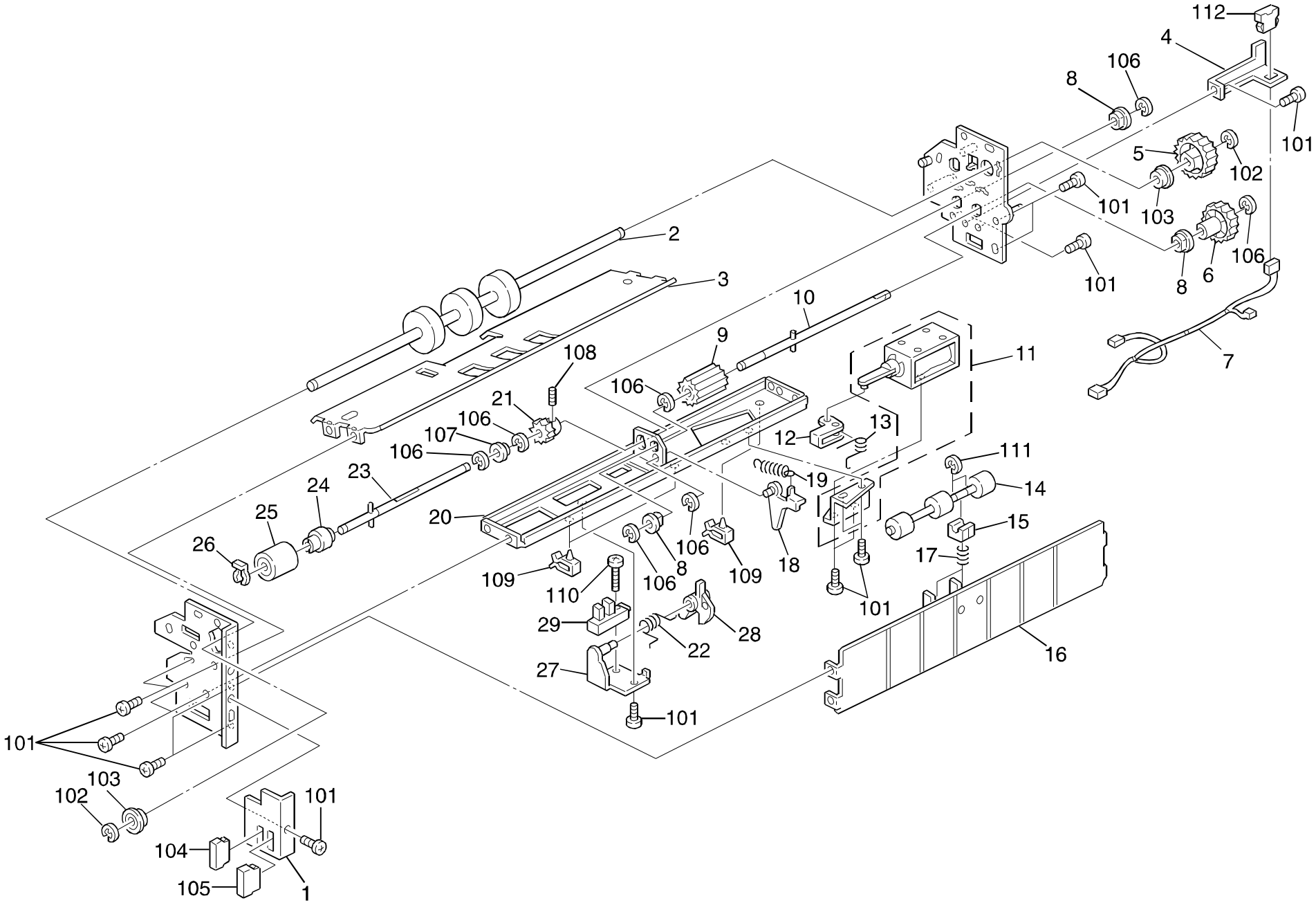


15. Paper Feed Section 1 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A096 5411	Upper Feed Unit Harness	3
2	A096 6344	Paper End Actuater	3
3	A096 6345	End Sensor Bracket	3
4	AW02 0056	Photointerruptor - EE-SX4235A-P1	6
5	5447 2681	Snap Ring	12
6	A096 6358	Photointerrupter Bracket	3
7	A096 6355	Pick-up Solenoid	3
8	A096 6346	Paper Feed Stay	3
9	A096 6362	Paper End Feeler	3
10	AA06 0523	Pick-up Pressure Sping	3
11	AA14 0498	Feed Roller Shaft	3
12	A096 6353	Feed Roller Lever	3
13	AA06 0522	Stopper Spring	3
14	A096 6337	Paper Feed Guide	3
15	A096 6351	Pick-up Arm	3
16	A096 6352	Feed Roller Bracket	3
17	AA08 2070	Bushing - 8x16x7	6
18	**AF03 1022**	**Paper Feed Roller**	**3**
19	**AF03 0020**	**Pick-up Roller**	**3**
20	5447 2706	Gear - 15T	3
21	A096 6335	Front Side Plate	3
22	A096 6330	Rear Side Plate	3
23	A096 6360	Paper Flattener	3
24	AX21 0037	Magnetic Clutch	3
25	AB01 3775	Gear - 33Z	3
26	AB01 3774	Gear - 18Z	3
27	A096 6363	Front Paper Flattener	3

Index No.	Part No.	Description	Q ty Per Assembly
101	0434 0060B	Philips Tapping Screw - M4x6	
102	0720 0060B	Retaining Ring - M6	
103	1105 0087	Clamp	
104	0720 0040B	Retaining Ring - M4	
105	0573 0040B	Hexagon Headless Set Screw - M3x4	

16. Paper Feed Section 2 (A172/A199)

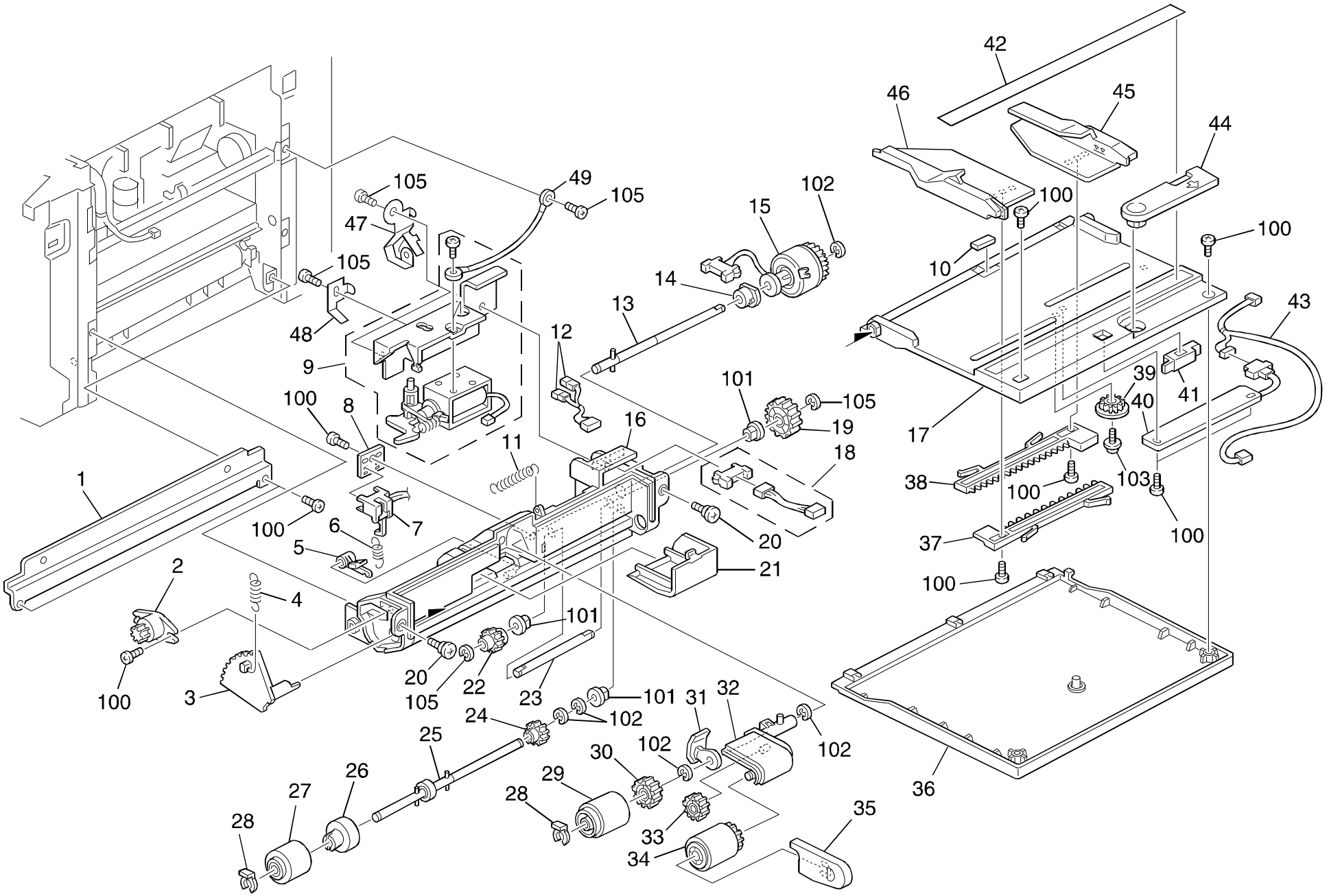


16. Paper Feed Section 2 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A096 6375	Unit Fixing Plate	3
2	AF02 0289	Grip Drive Roller	3
3	A096 6338	Separation Guide	3
4	A096 6366	Clutch Stopper Arm	3
5	AB01 3777	Gear - 32Z	3
6	AB01 3776	Gear - 30Z	3
7	A096 5412	Lower Feed Unit Harness	3
8	AA08 2046	Bushing - 6x12x6	9
9	AB01 3773	Gear - 18Z	3
10	A096 6306	Separation Drive Shaft	3
11	A096 6315	Release Solenoid	3
12	A096 6311	Release Lever	3
13	AA06 6553	Spring - Pressure Release - Reverse	3
14	AF02 0280	Driven Roller	3
15	AA08 0156	Bushing - M4	6
16	A096 6369	Vertical Transport Guide	3
17	AA06 3487	Spring - 10mm	6
18	A096 6308	Separation Pressure Lever	3
19	AA06 0520	Lever Spring - 24.4mm	3
20	A096 6303	Separation Roller Stay	3
21	AB01 3729	Gear - 18Z	3
22	AA06 6189	Feed Sensor Spring	3
23	A096 6307	Separation Driver Shaft	3
24	A097 6000	Separation Torque Limitter	3
25	**AF03 2023**	**Separation Roller**	**3**
26	5447 2681	Snap Ring	3
27	A096 6321	Position Sensor Bracket	3
28	A096 6322	Position Sensor Feeler	3
29	AW02 0061	Photointerruptor - EE - SX4019-P1	3

Index No.	Part No.	Description	Q ty Per Assembly
101	0434 0060B	Philips Tapping Screw - M4x6	
102	0720 0060B	Retaining Ring - M6	
103	0742 3808	Ball Bearing - 8x16x5	
104	1102 6265	Connector - Red 8p	
105	1102 6250	Connector - 7p	
106	0720 0040B	Retaining Ring - M4	
107	0805 3145	Ball Bearing - 6x12x4mm	
108	0574 0040E	Hexagon Headless Set Screw - M4x4	
109	1105 0087	Clamp	
110	0314 0120B	Philips Pan Head Screw - M4x12	
111	0720 0030B	Retaining Ring - M3	
112	1102 6245	Connector - 2p	

17. By-pass Feed Table (A172/A199)

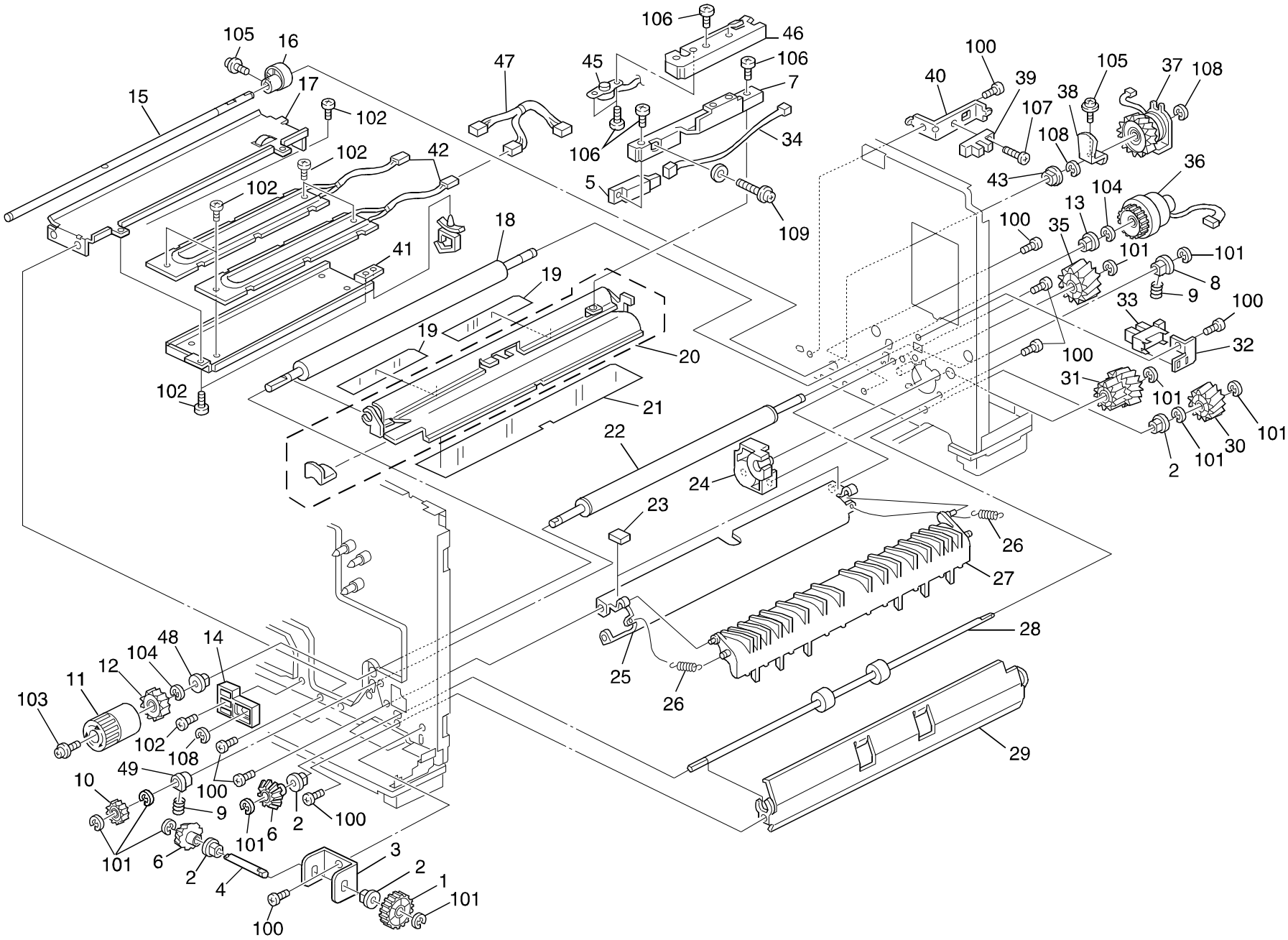


17. By-pass Feed Table (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A109 2721	Upper Stay Vertical Transport	1
2	A109 2691	Oil Damper - GF.CM	1
3	A109 2693	By-pass Feed Shaft	1
4	AA06 2272	Release Spring	1
5	A109 2653	Pressure Arm - By-pass	1
6	AA06 2283	Spring	1
7	AW02 0066	Photointerruptor	1
8	A109 2642	Paper End Sensor Bracket	1
9	A109 2680	By-pass Pick-up Solenoid	1
10	5447 2927	Friction Pad - B	1
11	AA06 2271	Release Spring	1
12	A109 5322	By-pass Feed Harness - 1	1
13	A109 2665	Feed Roller Shaft - By-pass	1
14	AA08 3003	Bushing - 6x18x5mm	1
15	AX20 0096	Magnetic Clutch	1
16	A172 2670	By-pass Feed Housing	1
17	A172 2621	By-pass Feed Table	1
18	A109 5361	By-pass Feed Harness - 3	1
19	AB01 3846	Gear - 28Z	1
20	AA14 3074	Stepped Screw - M4x5	2
21	A172 2675	Housing Cover	1
22	5447 2683	Gear - 18T	1
23	AA14 0522	Drive Shaft	1
24	5447 2684	Gear - 18T	1
25	A109 2652	Separation Roller Shaft - By-pass	1
26	A097 6000	Separation Torque Limitter	1
27	**AF03 2021**	**Separation Roller**	**1**
28	5447 2681	Snap Ring	2
29	**AF03 1023**	**Paper Feed Roller**	**1**
30	5353 3710	Gear - 18Z	1
31	A109 2666	Pick-up Arm Holder	1
32	A172 2661	Pick-up Arm - By-pass Feed	1
33	5447 2706	Gear - 15T	1
34	**AF03 0021**	**Pick-up Roller**	**1**
35	A172 2662	Pick-up Roller Cover - By-pass Feed	1

Index No.	Part No.	Description	Q ty Per Assembly
36	A172 2630	By-pass Feed Cover	1
37	AB01 3866	Front Side Fence Rack	1
38	A109 2638	Rear Side Fence Rack	1
39	G011 3305	Gear - 16T	1
40	A109 5538	Bypass Feed Table Sensor - 115V	1
40	A172 5126	Bypass Feed Table Sensor - 230V	1
41	A010 5700	Sensor	1
42	AA00 2217	Decal - Bypass Feed - A4	1
42	aa00 2230	Decal - Paper Size - LT	1
43	A109 5323	By-pass Feed Harness - 2	1
44	A172 2627	Paper Support Arm	1
45	A172 2635	Rear Side Fence - By-pass Feed	1
46	A172 2633	Front Side Fence - By-pass Feed	1
47	A109 2658	Ground Plate - Separation Roller	1
48	A109 2659	Ground Plate - Feed Roller Shaft	1
49	A109 5394	Ground Wire	1
100	0413 0082B	Tapping Screw - M3x8	
101	0805 3366	Bushing - 6mm	
102	0720 0040B	Retaining Ring - M4	
103	0965 3006B	Tapping Screw With Flat Washer - M3x6	
104	0414 0082B	Binding Self Tapping Screw - M4x8	
105	0720 0040E	Retaining Ring - M4	

18. Paper Registration (A172/A199)

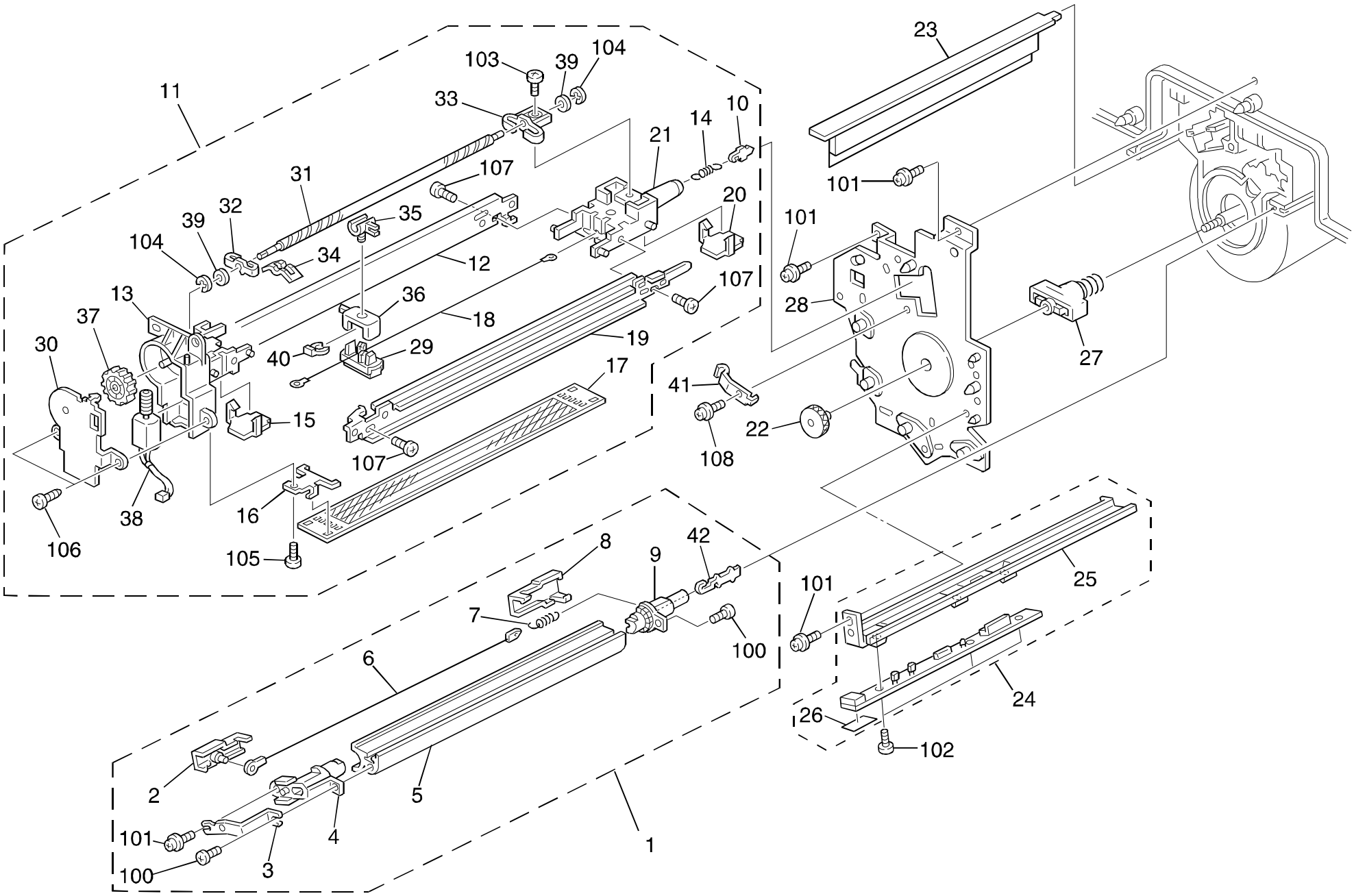


18. Paper Registration (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	AB01 3852	Gear - 21Z	1
2	5053 0447	Bushing - 6mm	4
3	A109 6502	Drive Gear Bracket	1
4	AA14 8402	Drive Shaft	1
5	A010 5700	Sensor	1
6	AB01 6001	Gear - 14Z	2
7	A172 2594	Registration Sensor Holder	1
8	AA08 0037	Bushing - 6 mm	1
9	5442 2754	Spring - Registration Roller	2
10	5447 3922	Gear - 16T	1
11	AG05 0069	Registration Knob	1
12	AB01 3601	Gear - 20Z	1
13	AA08 2021	Bushing - 8x12x10mm	1
14	A109 6285	Transfer Cam Positioning Plate	1
15	AA14 5217	Cam Shaft	1
16	A109 6097	Release Cam	1
17	A109 6286	Paper Transfer Unit Rail	1
18	AF02 0311	Upper Registration Roller	1
19	A109 2588	Upper Guide - Registration	2
20	A109 2582	Upper Guide Plate - Registration	1
21	A109 2589	Large Guide - Registration	1
22	AF02 1049	Lower Registration Roller	1
23	AG07 0008	Magnet Catch	2
24	A109 2610	Gear Holder	1
25	A109 2575	Lower Guide Plate - Registration	1
26	AA06 2288	Spring	2
27	A109 2571	Registration Guide Plate	1
28	AF02 0312	Relay Roller	1
29	A109 2574	Relay Guide Plate	1
30	AB01 3844	Gear - 30Z	1
31	AB01 7322	Gear - 34Z/41Z	1
32	A109 2711	Sensor Bracket - Registration Guide	1
33	AW02 0056	Photointerruptor - EE-SX4235A-P1	1
34	A109 5311	Sensor Relay Harness	1
35	AB01 3843	Gear - 35Z	1

Index No.	Part No.	Description	Q ty Per Assembly
36	AX21 0040	Magnetic Clutch	1
37	AX21 0041	Spring Clutch	1
38	A109 6298	Sensor Feeler - Transfer Roller	1
39	AW02 0062	Photointerruptor - EE-SX4019-P15	1
40	A109 4714	Position Sensor Bracket	1
41	A172 6284	Anti-condensation Heater Cover	1
42	AX40 0074	Anti-condensation Heater - 115V 18W	2
42	AX40 0075	Anticondensation Heater - 230V 18W	2
43	AA08 0166	Bushing - 8mm	1
44	AA08 2058	Bushing - 6x10x9mm	2
45	A172 5414	Thermofuse - 28 c 120V 3.0A	1
46	A172 2595	Thermofuse Holder	1
47	A172 5389	Heater Harness	1
48	AA08 2068	Bushing - 8mm	1
49	AA08 0211	Bushing - 6mm	1
100	0434 0080B	Philips Tapping Screw - M4x8	
101	0720 0040B	Retaining Ring - M4	
102	0354 0060B	Screw - M4X6	
103	0951 4008B	Philips Screw With Washer - M4x8	
104	0720 0060B	Retaining Ring - M6	
105	0951 3006B	Philips Screw With Flat Washer - M3x6	
106	0314 0060B	Philips Pan Head Screw - M4x6	
107	0354 0100B	Screw - M4x10	
108	0720 0050B	Retaining Ring - M5	
109	0313 0100B	Philips Pan Head Screw - M3x10	

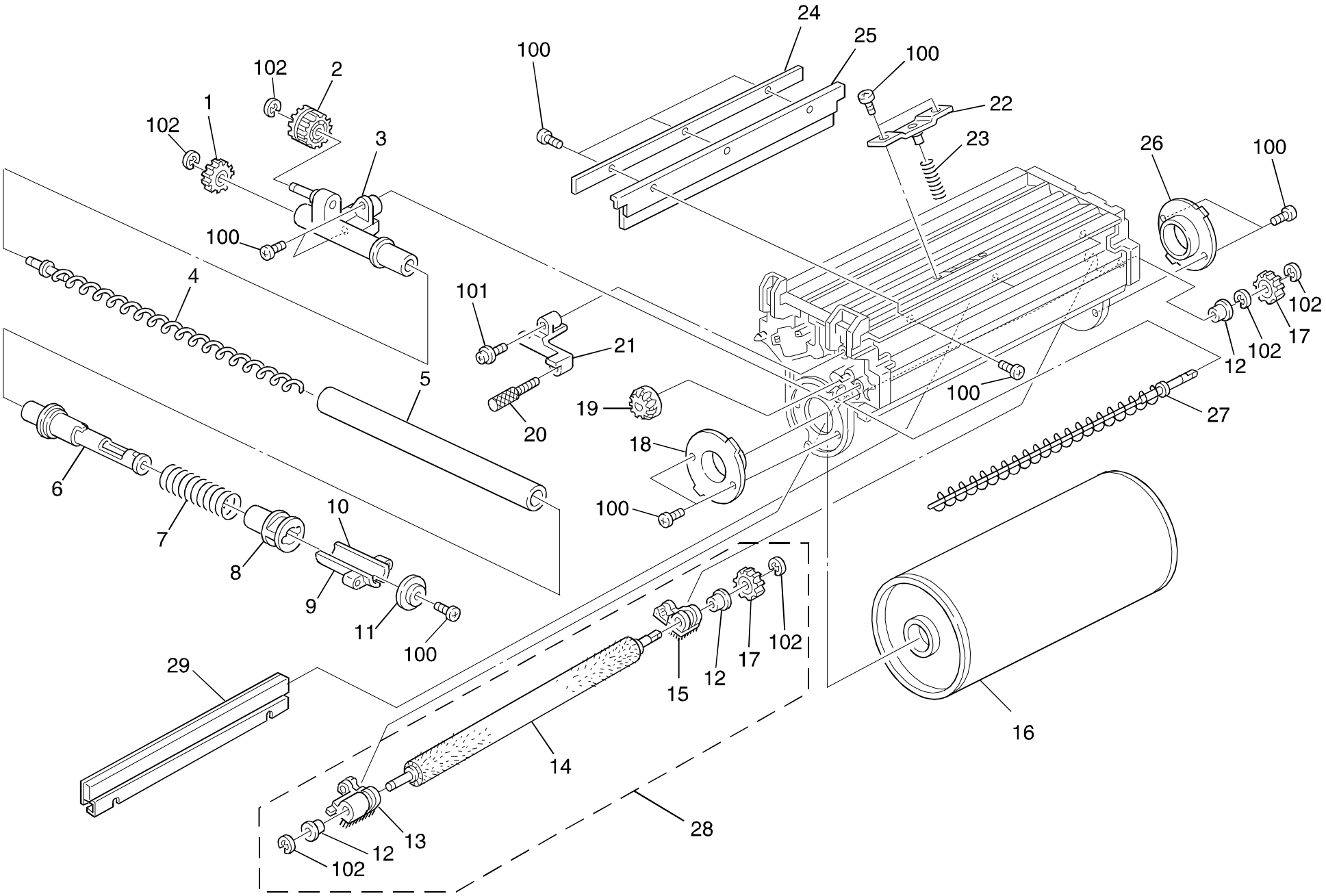
19. Around The Drum (A172/A199)



19. Around The Drum (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	AD00 4071	Pre - Cleaning Corona Unit	1
2	AD02 2293	Front End Block Cover - Pre Cleaning	1
3	A109 2369	Grounding Plate - Pre Cleaning	1
4	AD02 2291	Front End Block - Pre Cleaning	1
5	AD02 3086	Corona Casing - Pre Cleaning	1
6	**AD02 0056**	**PCC Wire**	**1**
7	5442 2108	Corona Wire Spring	1
8	AD02 2294	Rear End Block Cover - Pre Cleaning	1
9	AD02 2292	Rear End Block	1
10	A172 7611	Positioning Pin	1
11	AD00 4087	Charge Corona Unit	1
12	A172 7615	Left Caseing - Charge Corona	1
13	AD02 2281	Front End Block	1
14	5442 2108	Corona Wire Spring	1
15	AD02 2340	Front Cover - Charge Corona	1
16	A172 7610	Grid Fixing Plate	1
17	**AD02 0069**	**Charge Corona Grid**	**1**
18	**AD02 0070**	**Charge Corona Wire**	**1**
19	A172 7616	Right Caseing - Charge Corona	1
20	AD02 2341	Rear Cover - Charge Corona	1
21	AD02 2282	Rear End Block	1
22	A109 2287	Drum Flange Knob	1
23	A109 2381	Quenching Lamp	1
24	A109 5192	ID Sensor Board	1
25	A109 2371	ID Sensor Stay	1
26	AA15 0360	Seal - 13x20	1
27	A109 2291	Knob Screw	1
28	A109 1132	Drum Flange Cover	1
29	**A172 7642**	**Charge Wire/Grid Cleaner**	**1**
30	A172 7651	Cleaner Motor Cover	1
31	A172 7630	Screw Shaft	1
32	A172 7631	Front Bushing	1
33	A172 7632	Rear Bushing	1
34	A172 7633	Spring Plate	1
35	A172 7640	Wire Cleaner Slider	1
36	A172 7641	Wire Cleaner Holder	1
37	AB01 0094	Cleaning Drive Gear	1
38	AX04 0074	DC Motor - 3.46W 5V	1
39	A096 3863	Spacer - 4x6x1	2
40	A172 7650	Slider Ring	1
41	A172 7664	Spring Plate	1
42	AD02 4025	Corona Wire Terminal	1
100	0433 0060B	Philips Tapping Screw - M3x6	
101	0314 0080B	Philips Pan Head Screw - M4x8	
102	0313 0060B	Philips Pan Head Screw - M3x6	
103	0972 4006A	Philips Polycarbonate Screw - M4x6	
104	0720 0025	Retaining Ring - 2.5	
105	0452 3010B	Tapping Bind Screw - M3x10	
106	0452 3008B	Tapping Screw - M3x8	
107	0452 3006B	Tapping Screw - M3x6	
108	0951 4006B	Philips Screw With Washer - M4x6	

20. Drum Unit 1 (A172/A199)

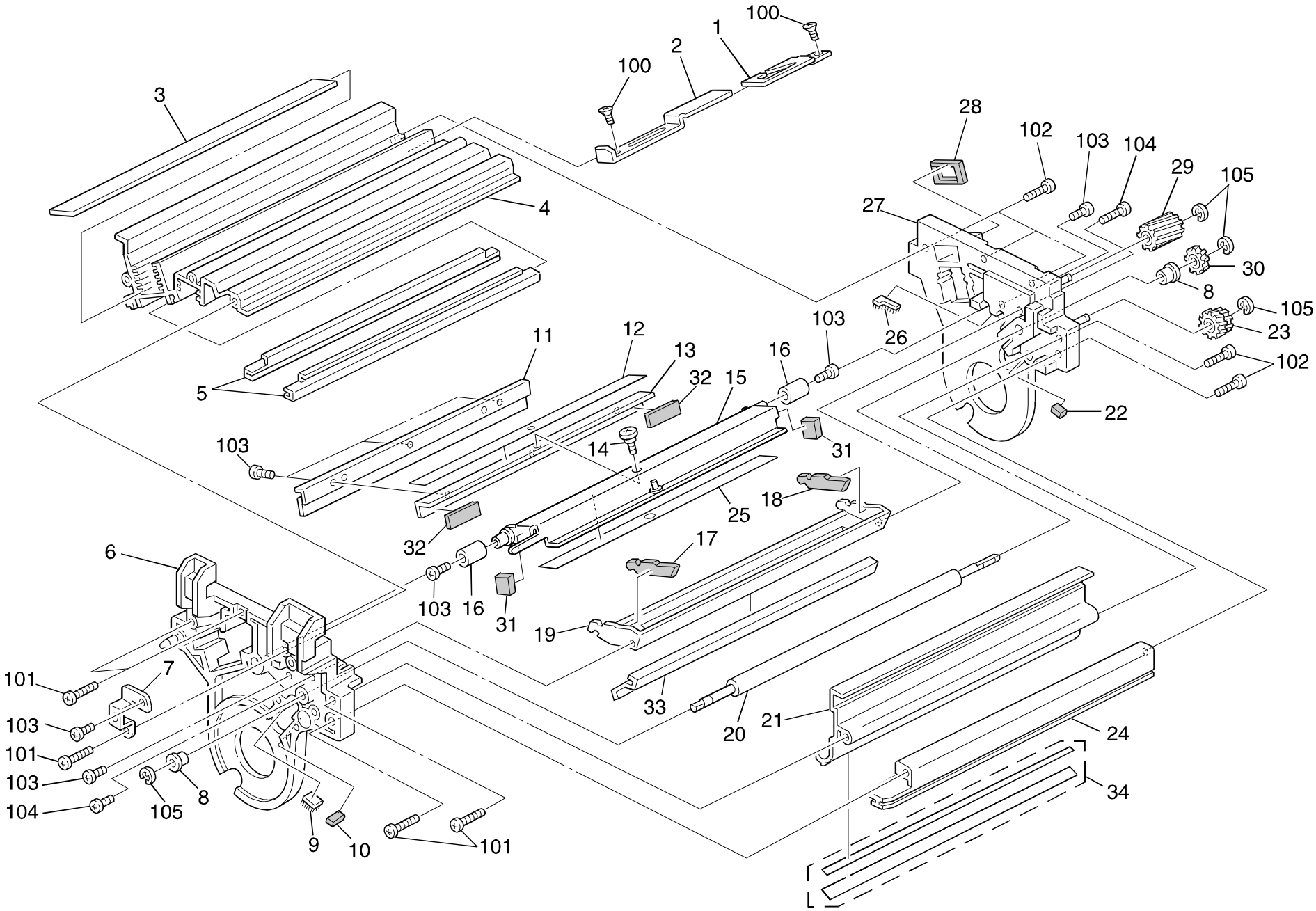


20. Drum Unit 1 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A109 3635	Gear - 18Z	1
2	A109 3631	Gear - 18Z/20Z	1
3	A109 3629	Toner Collection Joint	1
4	A109 3632	Toner Collection Auger	1
5	A109 3645	Toner Collection Tube	1
6	A109 3637	Toner Collection Pipe	1
7	A109 3642	Pressure Spring	1
8	A109 3643	Joint Shutter - Toner Collection	1
9	A109 3639	Right Shutter - Toner Collection	1
10	A109 3641	Left Shutter - Toner Collection	1
11	A109 3644	Shutter Stopper	1
12	A109 3615	Bushing - Cleaning Brush	3
13	A109 3605	Front Side Holder - Cleaning Brush	1
14	**A172 3601**	**Cleaning Brush**	**1**
15	A109 3610	Rear Side Holder - Cleaning Brush	1
16	A172 9510	OPC Drum	1
17	A109 3616	Gear - 16Z	2
18	A109 3652	Front Drum Flange	1
19	A109 3651	Gear - 20Z	1
20	A109 3650	Knob Screw	1
21	A109 3601	Blade Stopper Lever	1
22	A109 3574	Pressure Plate - Cleaning Brush	1
23	A172 3577	Pressure Spring - Cleaning Brush	1
24	A109 3626	Blade Holder - Bias Roller	1
25	**A109 3623**	**Bias Roller Blade**	**1**
26	A109 3653	Rear Drum Flange	1
27	A109 3618	Toner Collection Coil	1
28	A172 3604	Cleaning Brush Ass y	1
29	**A172 3602**	**Lubricant Bar**	**1**

Index No.	Part No.	Description	Q ty Per Assembly
100	0314 0060B	Philips Pan Head Screw - M4x6	
101	0951 4006B	Philips Screw With Washer - M4x6	
102	0720 0040B	Retaining Ring - M4	

21. Drum Unit 2 (A172/A199)

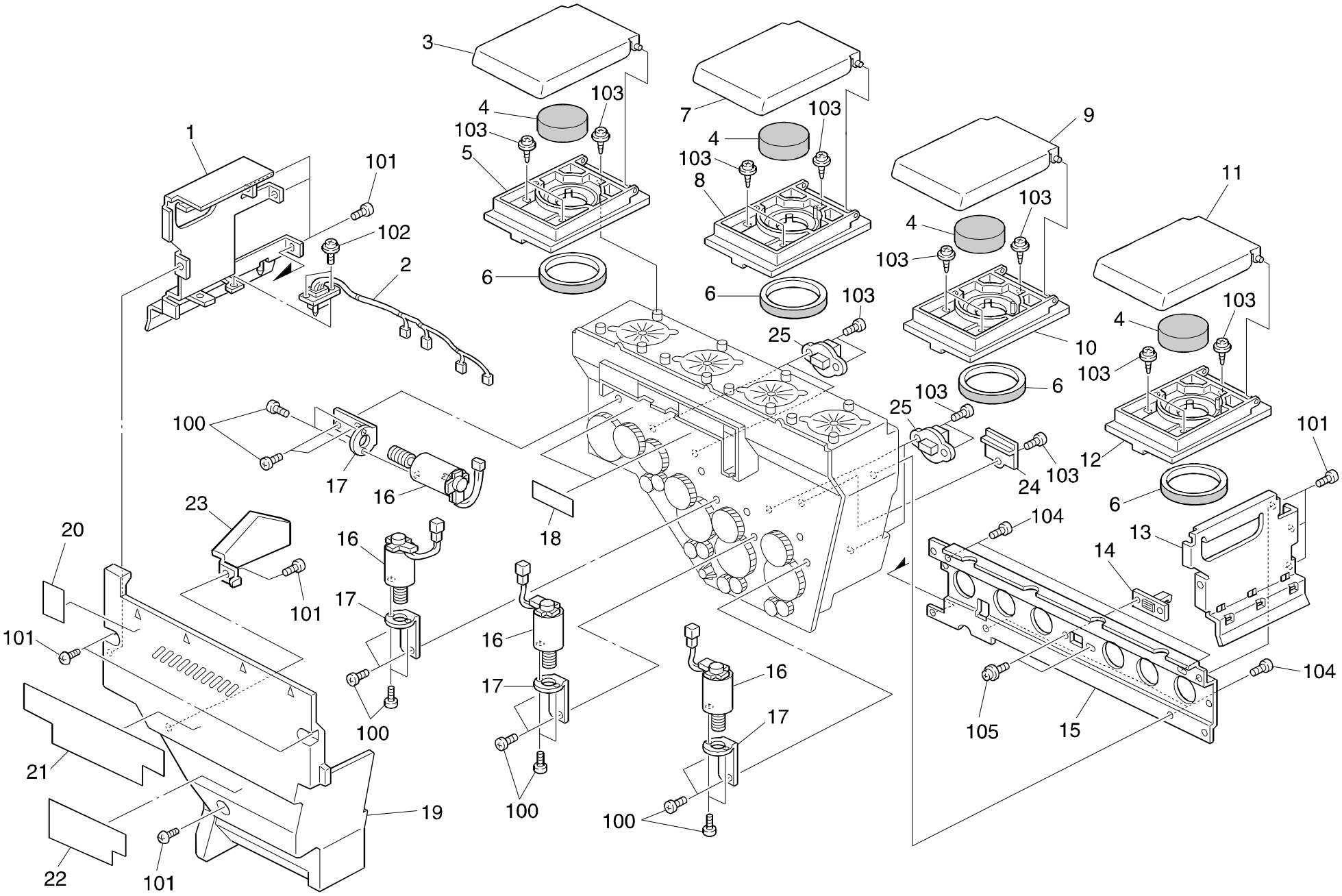


21. Drum Unit 2 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
*	A172 3560	Cleaning Unit	1
1	A109 3570	Lower Louver	1
2	A109 3571	Middle Louver	1
3	A109 3572	Upper Louver	1
4	A109 3569	Charge Corona Housing	1
5	A109 3573	Guide Rail - Charge Corona	2
6	A109 3553	Front Side Plate - Drum	1
7	A109 3558	Drum Grounding Plate	1
8	A109 3615	Bushing - Cleaning Brush	2
9	A109 3557	Seal - 5x14x14	1
10	A109 3556	Seal - 4x5x10	1
11	**A172 3598**	**Cleaning Blade**	**1**
12	A109 3596	Seal - 16x323	1
13	A109 3595	Cleaning Blade Holder	1
14	A109 3597	Stepped Screw - M4	1
15	A109 3589	Drum Cleaning Bracket	1
16	A109 3648	Spacer - 6x8x14	2
17	A109 3585	Front Side Seal-cleaning Brush Cove	1
18	A109 3586	Rear Seal - Cleaning Brush Cover	1
19	A109 3584	Cleaning Brush Cover	1
20	A109 3617	Cleaning Brush Bias Roller	1
21	A109 3579	Right Side Stay - Drum Cleaning	1
22	A109 3565	Seal - 3x4x5	1
23	A109 3647	Gear - 16/17Z	1
24	A109 3582	Pre-cleaning Corona Rail	1
25	A109 3593	Seal - 21x323	1
26	A109 3566	Seal - 5x10x14	1
27	A109 3560	Rear Side Plate - Drum	1
28	A109 3567	Duct Seal - 3x22x27	1
29	A109 3646	Gear - 16Z	1
30	A109 3616	Gear - 16Z	1
31	A109 3659	Seal - 3x9x9	2
32	A109 3660	Seal - 3x8x18	2
33	A109 3661	Cover Bracket - Cleaning Brush	1
34	A109 9501	Drum Cleaning Entrance Seal	1

Index No.	Part No.	Description	Q ty Per Assembly
100	0972 4006A	Philips Polycarbonate Screw - M4x6	
101	0314 0200B	Philips Pan Head Screw - M4x20	
102	0314 0160B	Philips Pan Head Screw - M4x16	
103	0313 0060B	Philips Pan Head Screw - M3x6	
104	0313 0120B	Philips Pan Head Screw - M3x12	
105	0720 0040B	Retaining Ring - M4	

22. Toner Tank Unit 1 (A172/A199)

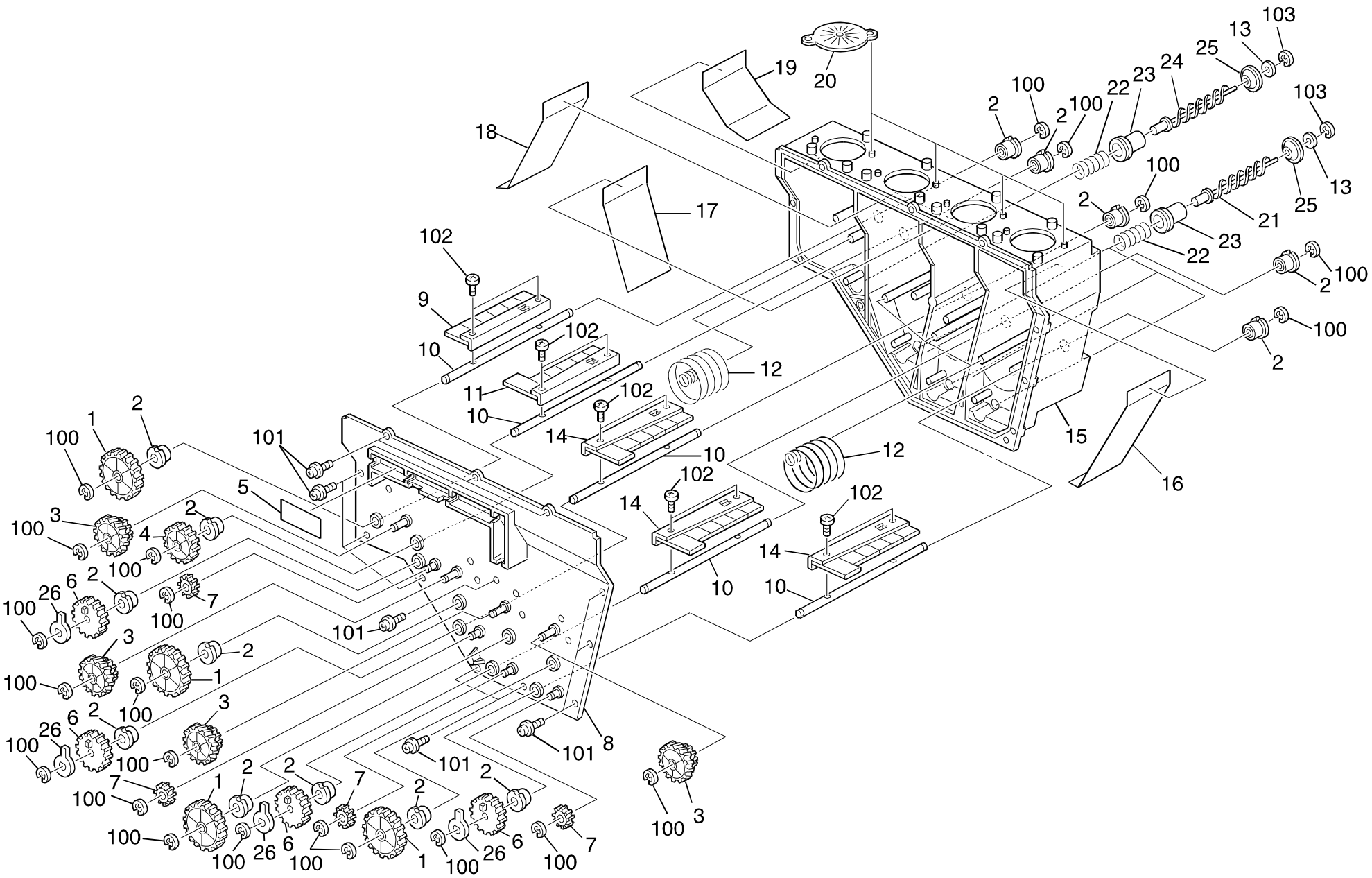


22. Toner Tank Unit 1 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A172 3420	Left Side Plate - Hopper	1
2	A172 5306	Hopper Harness	1
3	A109 3406	Top Cover Bottle - Black	1
4	AA15 1875	Seal - 20x40	4
5	A109 3401	Toner Bottle Guide - Black	1
6	AA15 1829	Seal - 72	4
7	A109 3407	Top Cover Bottle - Cyan	1
8	A109 3404	Toner Bottle Guide - Cyan	1
9	A109 3408	Top Cover Bottle - Magenta	1
10	A109 3402	Toner Bottle Guide - Magenta	1
11	A109 3409	Top Cover Bottle - Yellow	1
12	A109 3403	Toner Bottle Guide - Yellow	1
13	A109 3428	Right Side Plate - Toner Tank	1
14	A172 3475	Tank Unit Stopper	1
15	A109 3427	Rear Side Plate - Toner Tank	1
16	A109 5401	Toner Supply Motor - DC24V 4.5W	4
17	A109 3395	Toner Supply Motor Bracket	4
18	AA15 0351	Sheet - 25x57	2
19	A109 3410	Toner Tank Cover	1
20	A072 1383	Decal - Ading Toner	1
21	A172 1590	Decal - Toner Supply	1
22	A109 1551	Decal - Misfeed Removal C	1
23	A109 3112	Development Support Cam	1
24	A172 3462	Harness Calmp	4
25	AW23 0009	Toner End Sensor	4

Index No.	Part No.	Description	Q ty Per Assembly
100	0951 3006B	Philips Screw With Flat Washer - M3x6	
101	0314 0060B	Philips Pan Head Screw - M4x6	
102	0952 3008B	Screw - M3x8	
103	0414 0082B	Binding Self Tapping Screw - M4x8	
104	0314 0080B	Philips Pan Head Screw - M4x8	
105	0951 3005B	Philips Screw With Flat Washer - M3x5	

23. Toner Tank Unit 2 (A172/A199)

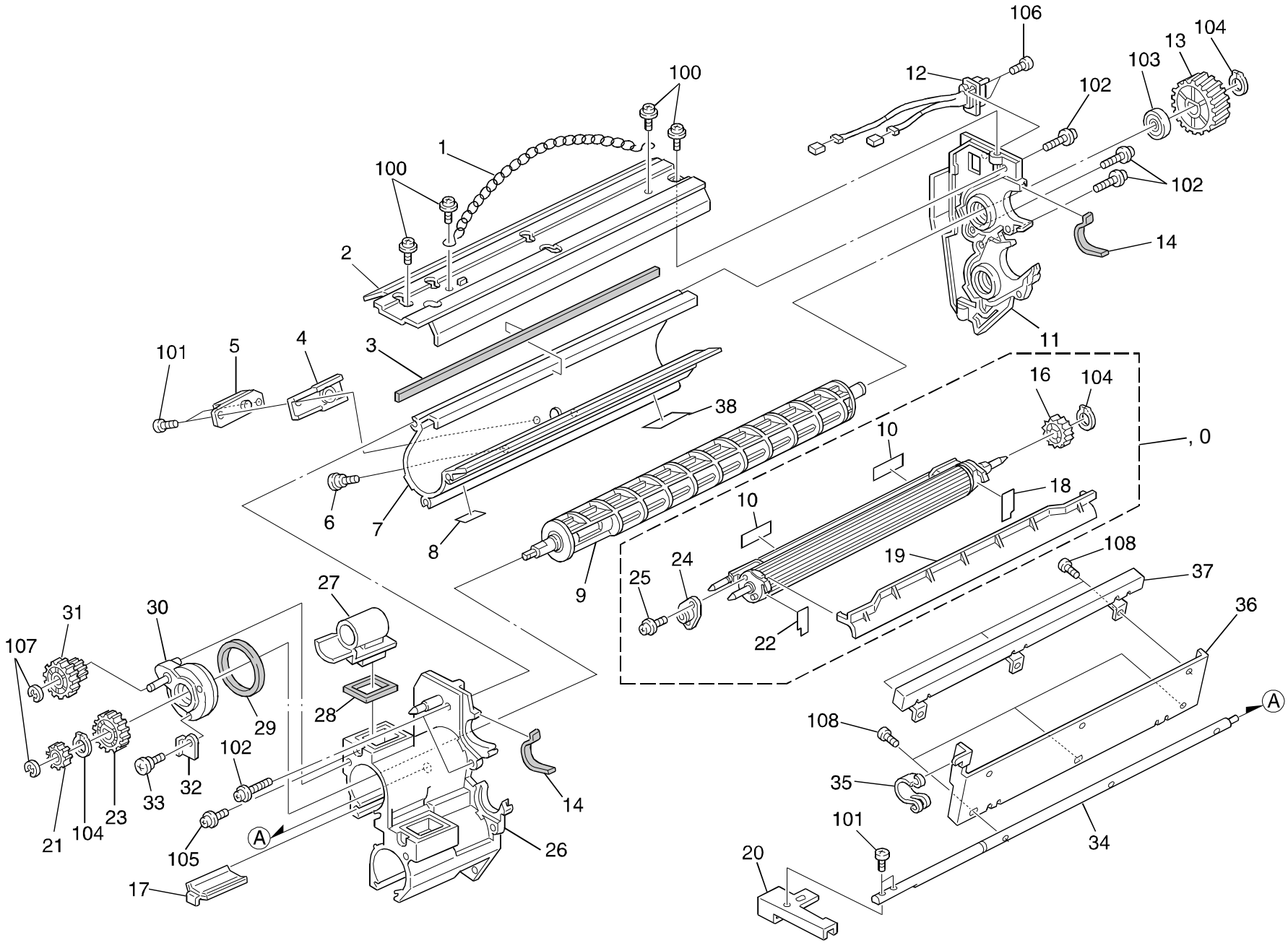


23. Toner Tank Unit 2 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	AB01 3810	Gear - 52Z	4
2	5447 3200	Bushing - 6mm	14
3	AB01 7306	Gear - 18Z/40Z	4
4	AB01 3811	Gear - 40Z	1
5	AA15 0351	Sheet - 25x57	1
6	AB01 3989	Idle Gear - 18Z	4
7	5205 2612	Gear - 19T	4
8	A109 3355	Front Casing - Toner Tank	1
9	AD03 9045	Large Agitator - BK	1
10	AA14 0510	Drive Shaft	5
11	A172 3468	Black Agitator	1
12	A172 3472	Spring	4
13	A109 3393	Spacer - Toner Supply Coil	2
14	A172 3464	Agitator	3
15	A172 3352	Toner Hopper Caseing	1
16	A109 3383	Toner Vibrating Mylar - Yellow	1
17	A109 3382	Toner Vibrating Mylar - Magenta	1
18	A109 3381	Toner Vibrating Mylar - Cyan	1
19	A109 3380	Toner Vibrating Mylar - Black	1
20	AA15 0343	Toner Entrance Seal	4
21	AD03 7052	Toner Supply Coil - Color	3
22	AA06 3361	Spring	4
23	A109 3390	Toner Supply Cap	4
24	AD03 7054	Toner Supply Coil - Black	1
25	AA15 2232	Packing - 18	4
26	A172 3473	Tonner Supply Roller Joint	4

Index No.	Part No.	Description	Q ty Per Assembly
100	0720 0040B	Retaining Ring - M4	
101	0951 3008B	Philips Screw With Flat Washer - M3x8	
102	0313 0080B	Philips Pan Head Screw - M3x8	
103	0720 0030E	Retaining Ring - M3	

24. Development Unit - Black (A172/A199)

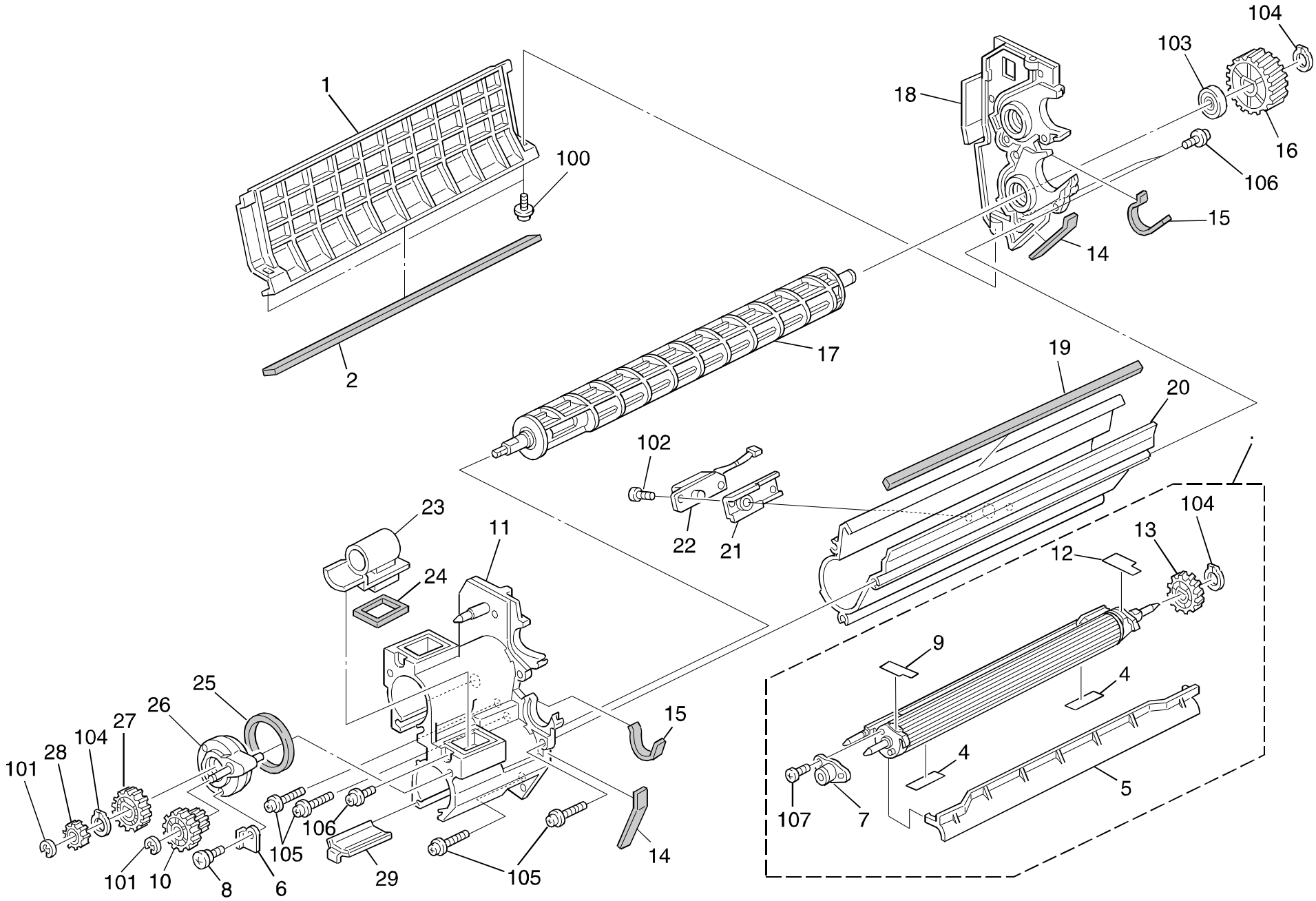


24. Development Unit - Black (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
*	AD00 1040	Development Unit -B/C	1
1	5205 1336	Front Cover Chain	1
2	A109 3089	Development Unit Guide - Black	1
3	AA15 1849	Seal - 5x8x342	1
4	A109 3065	Spacer - Toner Density Sensor	1
5	AW23 0007	Toner Density Sensor	1
6	6803 2273	Stepped Screw - M4	1
7	A109 3059	Development Casing - Black	1
8	A109 3096	Black Development Seal	1
9	A109 3066	Mixing Paddle Roller - B/C	1
10	A109 3086	Development Casing Seal	2
11	A109 3054	Rear Side Plate - B/C	1
12	A109 5305	Development Unit Harness	1
13	AB01 3814	Gear - 40Z	1
14	AA15 1842	Seal - 1x5x55.5	2
15	A172 3073	Development Sleeve - 1st	1
16	AB01 1342	Gear - 30Z	1
17	A109 3102	Toner Collection Cover	1
18	AA15 2320	Seal - 16x36	1
19	A109 3082	Development Sleeve Cover	1
20	A109 3108	Development Support Lever	1
21	AB01 1149	Gear - 14Z	1
22	AA15 2319	Seal - 16x36	1
23	AB01 1148	Gear - 28Z	1
24	A109 3085	Positioning Adjuster	1
25	5403 6246	Stepped Screw - Cleaning	1
26	A109 3051	Front Side Plate - B/C	1
27	A109 3100	Toner Supply Receptacle	1
28	AA15 1846	Seal - 2x27x36	1
29	AA15 1847	Seal - 4x47	1
30	A109 3068	Paddle Flange	1
31	AB01 7330	Gear - 20Z/34Z	1
32	A109 3070	Paddle Flange Stopper	1
33	AA14 3358	Stepped Screw - M4x3	1
34	A109 3107	Development Support Shaft	1

Index No.	Part No.	Description	Q ty Per Assembly
35	A109 3109	Lock - Spring	1
36	A109 3106	Development Support Plate	1
37	A109 3111	Spring Plate	1
38	A109 3064	Black Development Seal - Rear	1
100	0354 0060B	Screw - M4X6	
101	0313 0060B	Philips Pan Head Screw - M3x6	
102	0952 4014B	Screw - M4x14	
103	0805 3449	Ball Bearing - M12x24x6	
104	0725 0120E	Retaining Ring C - M12	
105	0952 4010B	Screw - M4x10	
106	0413 0102B	Tapping Screw - M3x10	
107	0720 0040B	Retaining Ring - M4	
108	0313 0040B	Philips Pan Head Screw - M3x4	

25. Development Unit - Cyan (A172/A199)

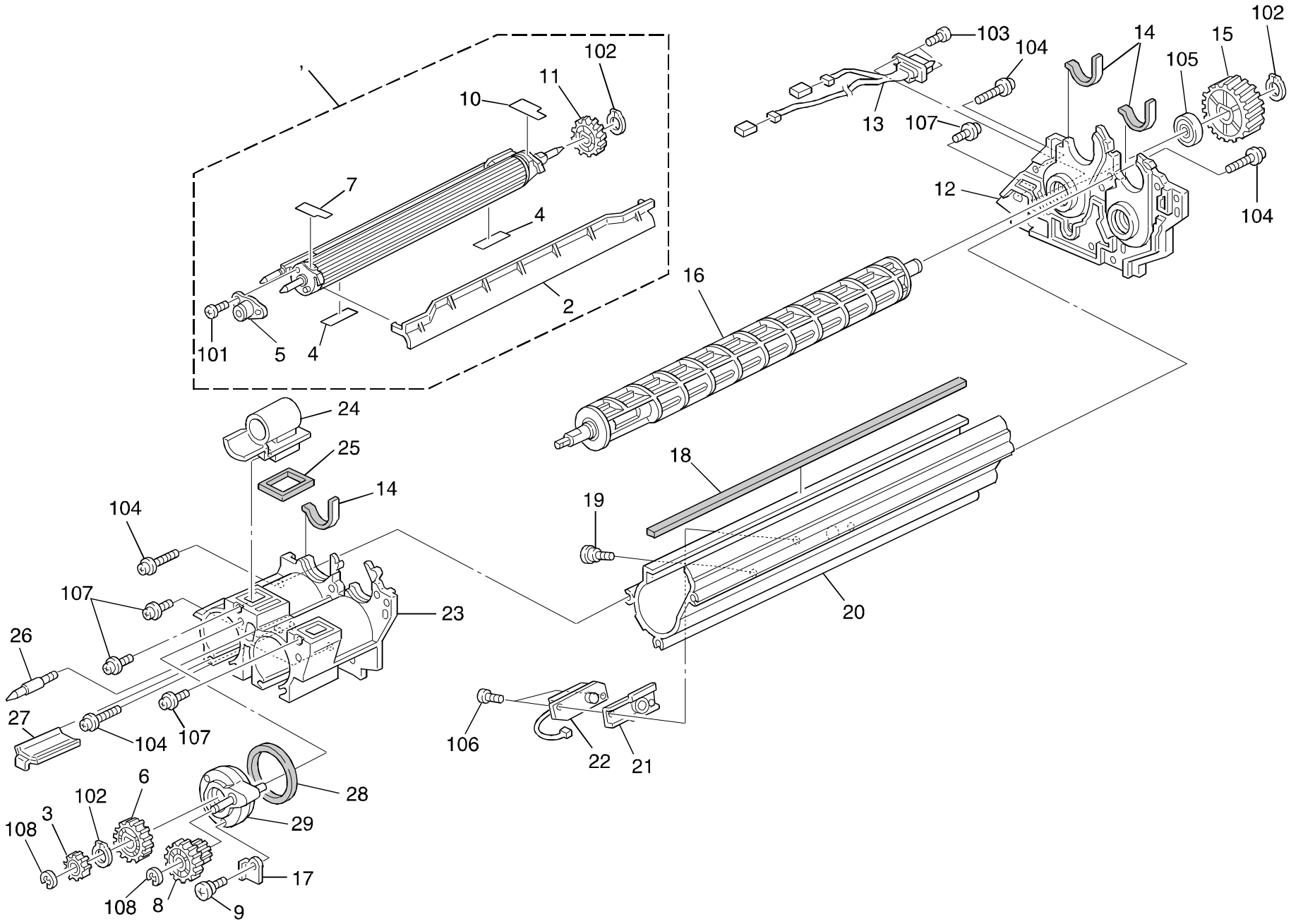


25. Development Unit - Cyan (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A109 3095	Development Unit Cover - B/C	1
2	AA15 1845	Seal - 4x8x333.5	1
3	A172 3074	Development Sleeve Ass y - Cyan	1
4	A109 3086	Development Casing Seal	2
5	A109 3082	Development Sleeve Cover	1
6	A109 3070	Paddle Flange Stopper	1
7	A109 3085	Positioning Adjuster	1
8	AA14 3285	Shoulder Screw - M4	1
9	AA15 2319	Seal - 16x36	1
10	AB01 7330	Gear - 20Z/34Z	1
11	A109 3051	Front Side Plate - B/C	1
12	AA15 2320	Seal - 16x36	1
13	AB01 1342	Gear - 30Z	1
14	AA15 1843	Seal - 4x7x59.5	2
15	AA15 1842	Seal - 1x5x55.5	2
16	AB01 3814	Gear - 40Z	1
17	A109 3066	Mixing Paddle Roller - B/C	1
18	A109 3054	Rear Side Plate - B/C	1
19	AA15 1849	Seal - 5x8x342	1
20	A109 3062	Development Casing - Cyan	1
21	A109 3065	Spacer - Toner Density Sensor	1
22	AW23 0007	Toner Density Sensor	1
23	A109 3100	Toner Supply Receptacle	1
24	AA15 1846	Seal - 2x27x36	1
25	AA15 1847	Seal - 4x47	1
26	A109 3068	Paddle Flange	1
27	AB01 1148	Gear - 28Z	1
28	AB01 1149	Gear - 14Z	1
29	A109 3102	Toner Collection Cover	1

Index No.	Part No.	Description	Q ty Per Assembly
100	0354 0060B	Screw - M4X6	
101	0720 0040B	Retaining Ring - M4	
102	0313 0060B	Philips Pan Head Screw - M3x6	
103	0805 3449	Ball Bearing - M12x24x6	
104	0725 0120E	Retaining Ring C - M12	
105	0952 4014B	Screw - M4x14	
106	0952 4010B	Screw - M4x10	
107	0313 0040B	Philips Pan Head Screw - M3x4	

26. Development Unit - Magenta (A172/A199)

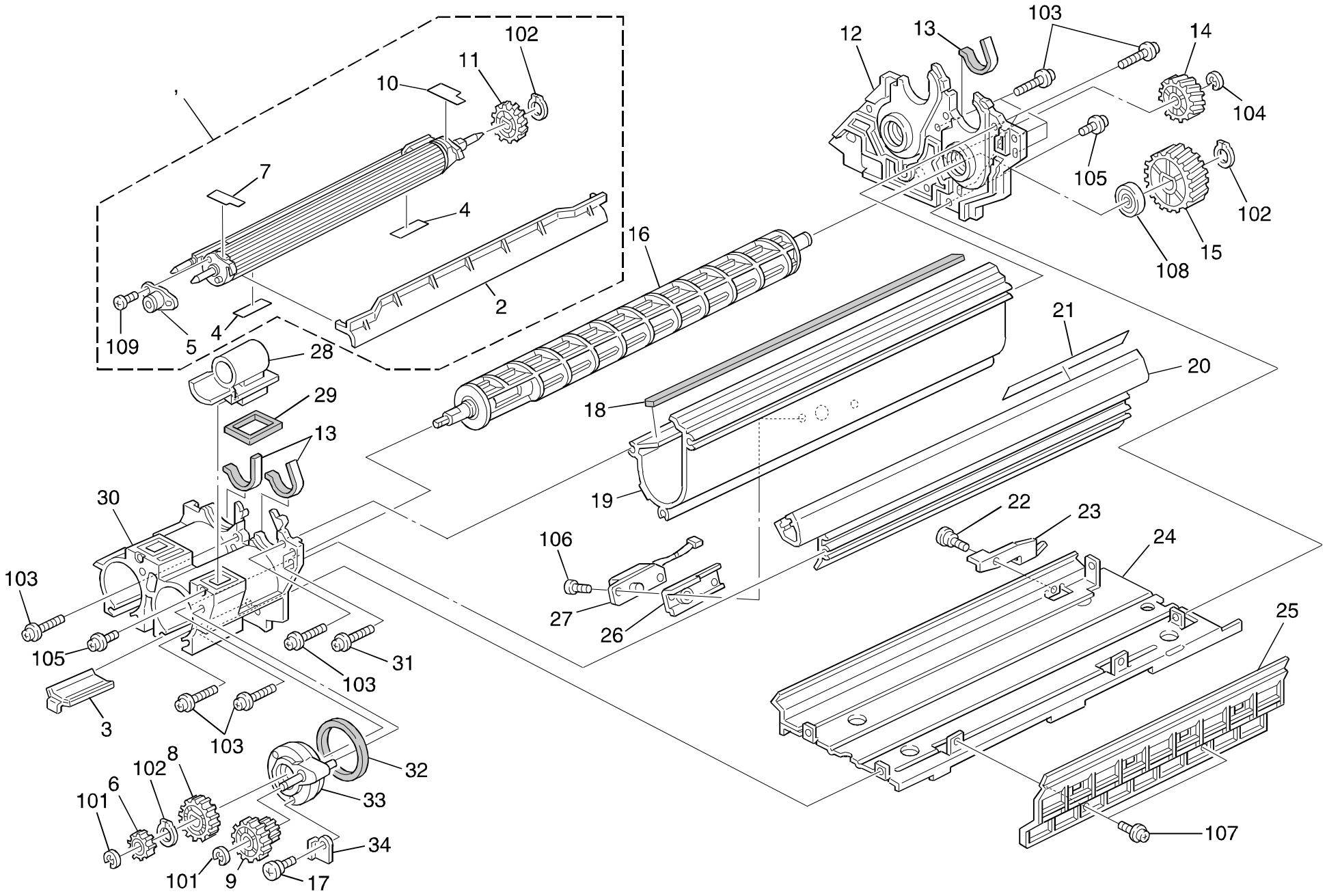


26. Development Unit - Magenta (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
*	AD00 1041	Development Unit - M/Y	1
1	A172 3214	Development Sleeve - M/Y	1
2	A109 3082	Development Sleeve Cover	1
3	AB01 1149	Gear - 14Z	1
4	A109 3086	Development Casing Seal	2
5	A109 3085	Positioning Adjuster	1
6	AB01 1148	Gear - 28Z	1
7	AA15 2319	Seal - 16x36	1
8	AB01 7330	Gear - 20Z/34Z	1
9	AA14 3285	Shoulder Screw - M4	1
10	AA15 2320	Seal - 16x36	1
11	AB01 1342	Gear - 30Z	1
12	A109 3204	Rear Side Plate - C/Y	1
13	A109 5305	Development Unit Harness	1
14	AA15 1842	Seal - 1x5x55.5	3
15	AB01 3814	Gear - 40Z	1
16	A109 3067	Mixing Paddle Roller - M/Y	1
17	A109 3070	Paddle Flange Stopper	1
18	AA15 1849	Seal - 5x8x342	1
19	6803 2273	Stepped Screw - M4	1
20	A109 3209	Development Casing - Magenta	1
21	A109 3065	Spacer - Toner Density Sensor	1
22	AW23 0007	Toner Density Sensor	1
23	A109 3201	Front Side Plate - C/Y	1
24	A109 3100	Toner Supply Receptacle	1
25	AA15 1846	Seal - 2x27x36	1
26	AA14 3418	Positioning Pin	1
27	A109 3102	Toner Collection Cover	1
28	AA15 1847	Seal - 4x47	1
29	A109 3068	Paddle Flange	1

Index No.	Part No.	Description	Q ty Per Assembly
101	0313 0040B	Philips Pan Head Screw - M3x4	
102	0725 0120E	Retaining Ring C - M12	
103	0413 0102B	Tapping Screw - M3x10	
104	0952 4014B	Screw - M4x14	
105	0805 3449	Ball Bearing - M12x24x6	
106	0313 0060B	Philips Pan Head Screw - M3x6	
107	0952 4010B	Screw - M4x10	
108	0720 0040B	Retaining Ring - M4	

27. Development Unit - Yellow (A172/A199)

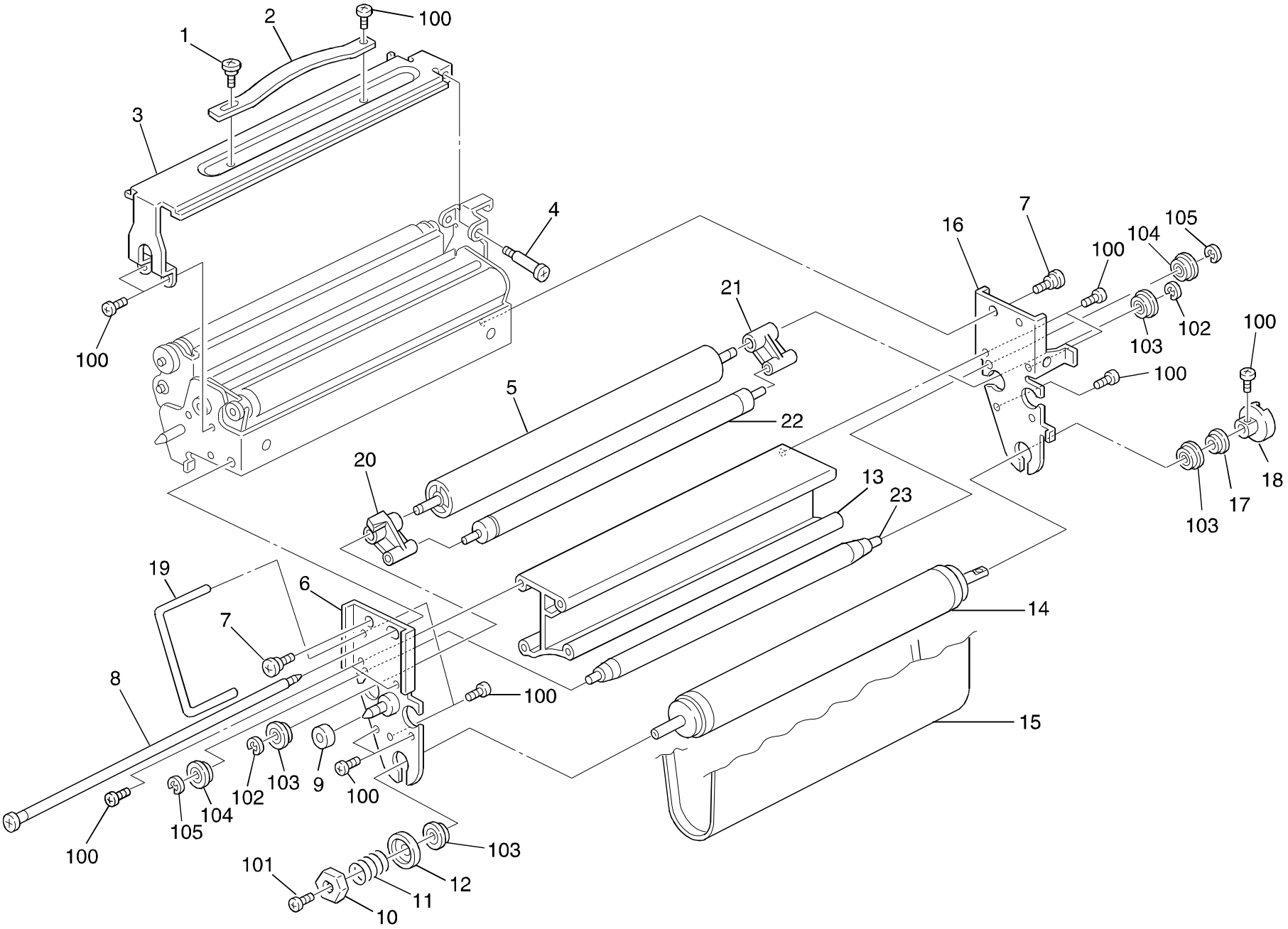


27. Development Unit - Yellow (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A172 3214	Development Sleeve - M/Y	1
2	A109 3082	Development Sleeve Cover	1
3	A109 3102	Toner Collection Cover	1
4	A109 3086	Development Casing Seal	2
5	A109 3085	Positioning Adjuster	1
6	AB01 1149	Gear - 14Z	1
7	AA15 2319	Seal - 16x36	1
8	AB01 1148	Gear - 28Z	1
9	AB01 7330	Gear - 20Z/34Z	1
10	AA15 2320	Seal - 16x36	1
11	AB01 1342	Gear - 30Z	1
12	A109 3204	Rear Side Plate - C/Y	1
13	AA15 1842	Seal - 1x5x55.5	3
14	AB01 3815	Gear - 30Z	1
15	AB01 3814	Gear - 40Z	1
16	A109 3067	Mixing Paddle Roller - M/Y	1
17	AA14 3285	Shoulder Screw - M4	1
18	AA15 1849	Seal - 5x8x342	1
19	A109 3212	Development Casing - Yellow	1
20	A109 3226	ID Sensor Rail	1
21	AA15 0345	Seal - 19.5x170	1
22	AA14 3358	Stepped Screw - M4x3	1
23	A109 3219	Development Unit Stopper - M/Y	1
24	A109 3216	Base Plate - M/Y	1
25	A109 3222	Development Unit Cover - M/Y	1
26	A109 3065	Spacer - Toner Density Sensor	1
27	AW23 0007	Toner Density Sensor	1
28	A109 3100	Toner Supply Receptacle	1
29	AA15 1846	Seal - 2x27x36	1
30	A109 3201	Front Side Plate - C/Y	1
31	5350 1754	Stud - M5x4	2
32	AA15 1847	Seal - 4x47	1
33	A109 3068	Paddle Flange	1
34	A109 3070	Paddle Flange Stopper	1

Index No.	Part No.	Description	Q ty Per Assembly
101	0720 0040B	Retaining Ring - M4	
102	0725 0120E	Retaining Ring C - M12	
103	0952 4014B	Screw - M4x14	
104	0720 0060B	Retaining Ring - M6	
105	0952 4010B	Screw - M4x10	
106	0313 0060B	Philips Pan Head Screw - M3x6	
107	0354 0060B	Screw - M4X6	
108	0805 3449	Ball Bearing - M12x24x6	
109	0313 0040B	Philips Pan Head Screw - M3x4	

28. Transfer Belt Unit 1 (A172/A199)

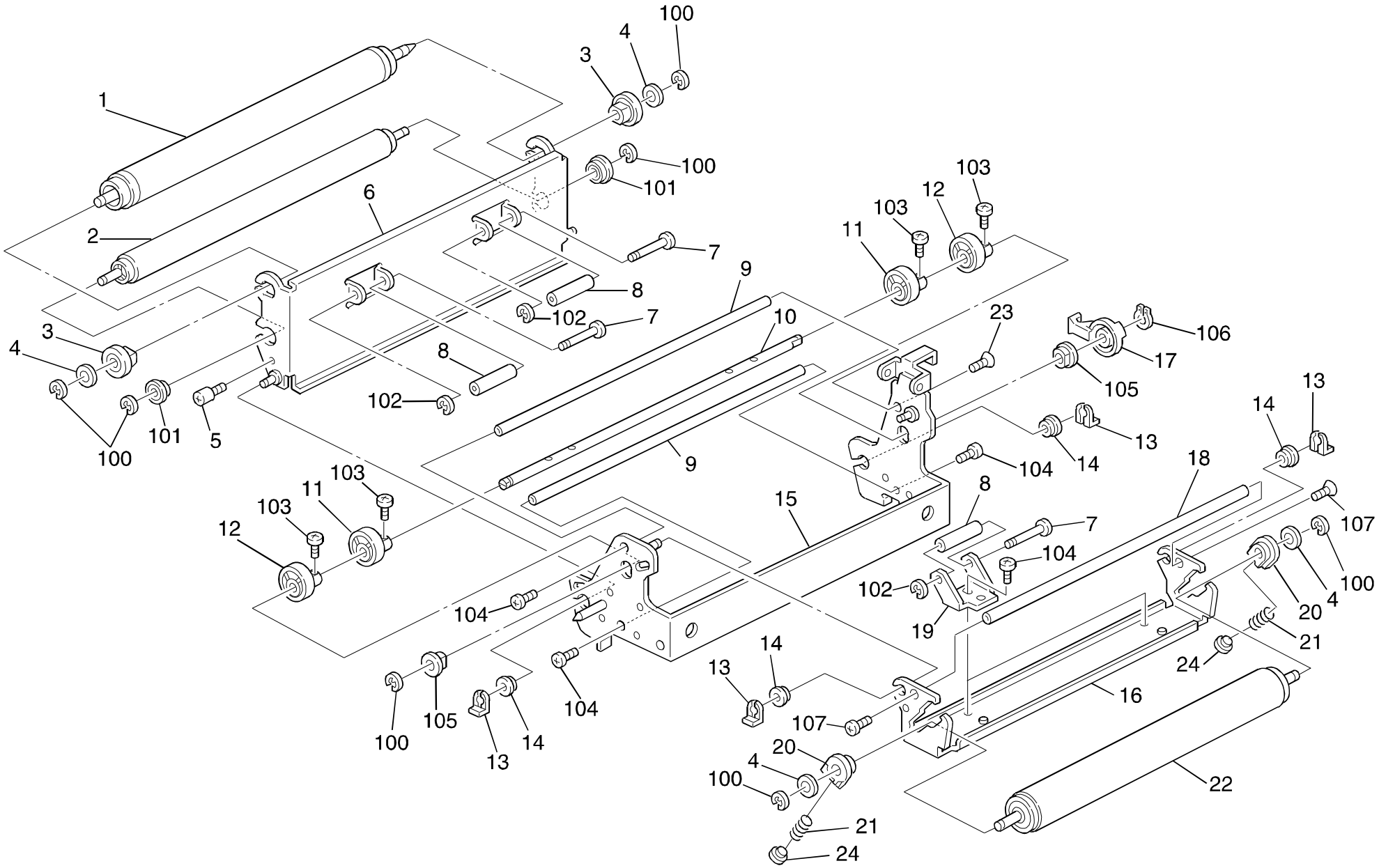


28. Transfer Belt Unit 1 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
*	A172 6000	Transfer Belt Unit	1
1	5919 2201	Shoulder Screw - M4	1
2	AG05 1106	Transfer Belt Unit Band	1
3	A109 6124	Transfer Unit Grip Plate	1
4	AA14 3709	Stepped Screw - M4	1
5	A109 6069	Belt Cleaning Roller	1
6	A172 6055	Belt Unit - Front Bracket	1
7	C201 5125	Shoulder Screw - M4	2
8	A109 6126	Transfer Unit Position Shaft	1
9	AA16 1097	Cushion - 6.5x14	1
10	A109 6087	Spring Holder Cover - Transfer	1
11	AA06 3493	Pressure Spring	1
12	A109 6089	Spring Holder - Transfer	1
13	A109 6060	Transfer Unit Stay	1
14	A109 6063	Belt Drive Roller	1
15	**A109 6130**	**Transfer Belt**	**1**
16	A172 6058	Belt Unit - Rear Bracket	1
17	AA13 2167	Spacer	1
18	A109 6082	Transfer Roller Joint	1
19	AG05 1100	Transfer Belt Unit Handle	1
20	A109 6155	Cleaning Roller Front Bracket	1
21	A109 6156	Cleaning Roller Rear Bracket	1
22	A172 6062	Belt Driven Roller	1
23	A172 6157	Belt Support Roller	1

Index No.	Part No.	Description	Q ty Per Assembly
100	0354 0060B	Screw - M4X6	
101	0951 4008B	Philips Screw With Washer - M4x8	
102	0720 0060B	Retaining Ring - M6	
103	0805 3482	Ball Bearing - 8x14x3.5	
104	0805 3449	Ball Bearing - M12x24x6	
105	0720 0040B	Retaining Ring - M4	

29. Transfer Belt Unit 2 (A172/A199)

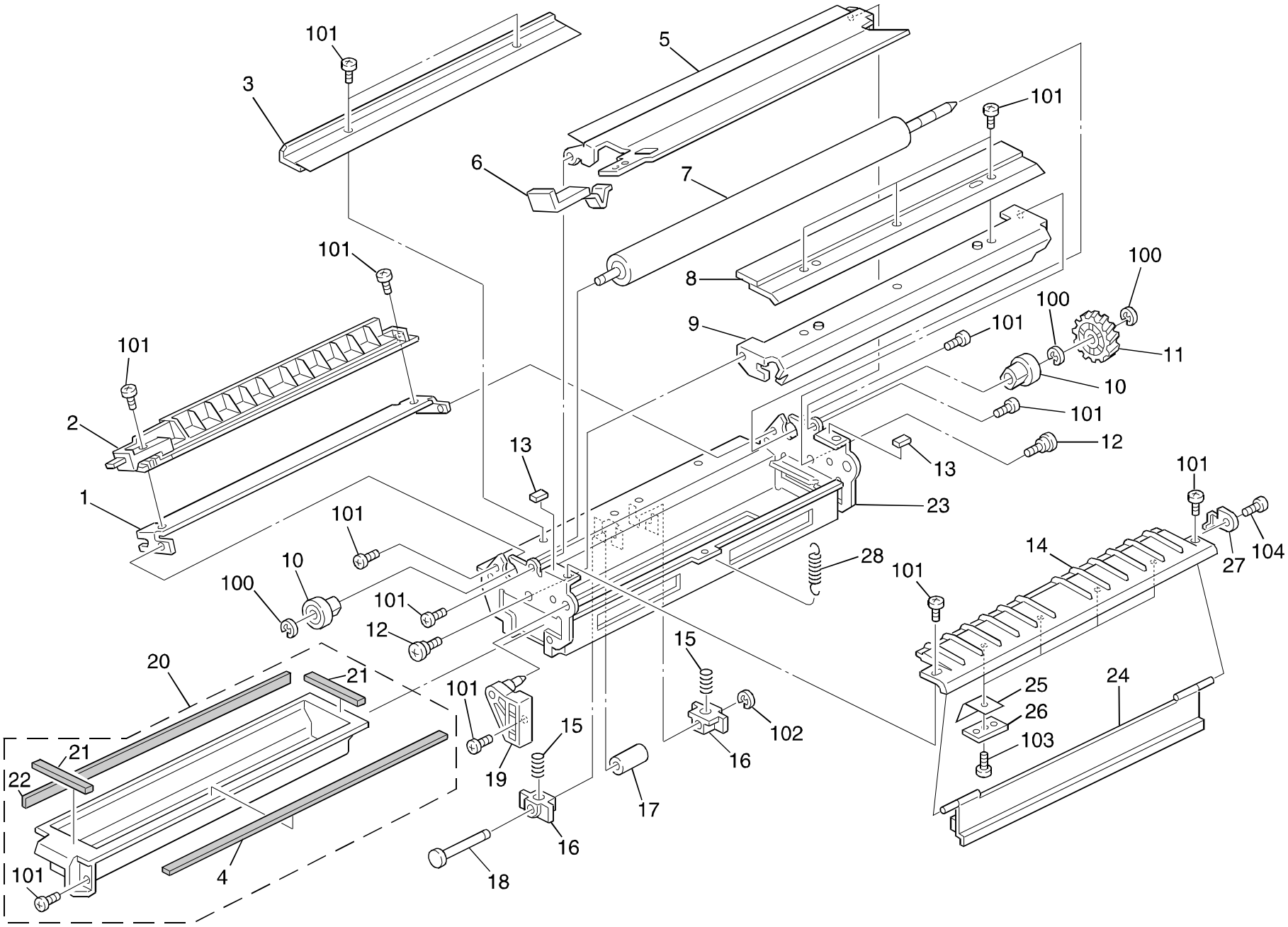


29. Transfer Belt Unit 2 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A109 6105	Belt Bias Roller	1
2	A109 6110	Transfer Idle Roller	1
3	AA08 4045	Bearing Holder	2
4	AA13 2172	Spacer	4
5	5409 1855	Mounting Pin	1
6	A109 6101	Bias Roller Bracket	1
7	AA14 8391	Pin - 4x36	4
8	AA13 2166	Roller	4
9	AA14 1081	Support Stay	2
10	A109 6096	Cam Shaft	1
11	A109 6097	Release Cam	2
12	A109 6098	Tention Cam	2
13	5206 2686	Snap Ring	4
14	AA08 1003	Bushing - 5x7x3.8mm	4
15	A109 6091	Transfer Unit Frame	1
16	A109 6121	Tension Roller Bracket	1
17	A109 6099	Cam Lever	1
18	AA14 1082	Support Stay	1
19	A109 6122	Tension Support Roller Holder	2
20	AA08 4044	Bearing Holder	2
21	AA06 3491	Pressure Spring	2
22	A109 6118	Belt Tension Roller	1
23	5875 2088	Shoulder Screw - M4	1
24	A109 6117	Base - Spring	2

Index No.	Part No.	Description	Q ty Per Assembly
100	0720 0060B	Retaining Ring - M6	
101	0805 3482	Ball Bearing - 8x14x3.5	
102	0720 0030B	Retaining Ring - M3	
103	0951 3006B	Philips Screw With Flat Washer - M3x6	
104	0354 0060B	Screw - M4X6	
105	0805 3366	Bushing - 6mm	
106	0727 0080E	Retaining Ring - M8	
107	0324 0060B	Philips Sunken Head Screw - M4x6	

30. Transfer Roller Unit (A172/A199)

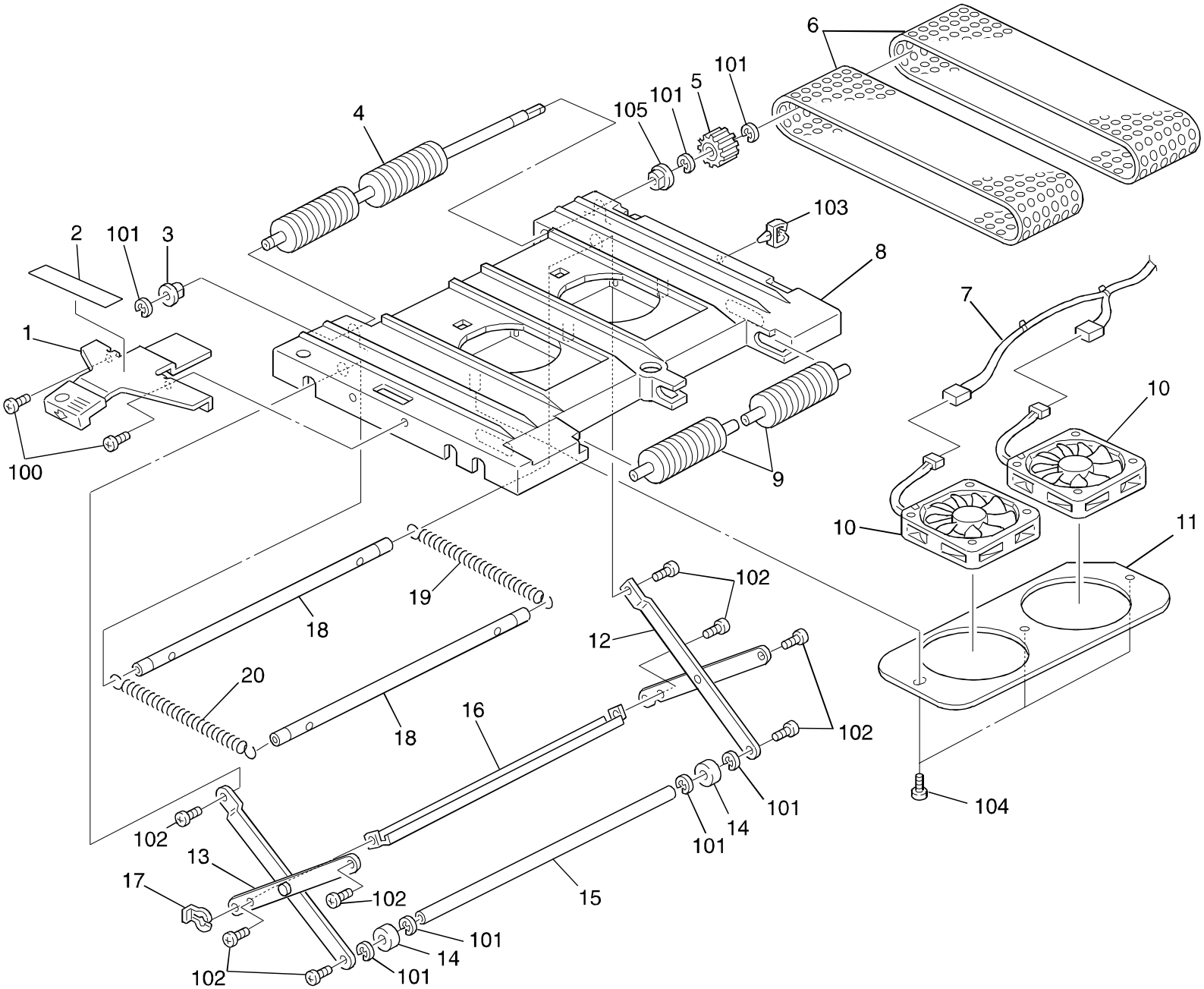


30. Transfer Roller Unit (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A172 6256	Support Plate - Separation Corona	1
2	**A172 6251**	**Paper Discharge Plate**	**1**
3	A109 6243	Entrance Seal Ass y - Transfer	1
4	AA15 1821	Seal - 5.5x356	1
5	A109 6248	Upper Guide Plate - Transfer	1
6	A109 6247	Transfer Guide Plate Knob	1
7	A172 6200	Transfer Roller	1
8	**AD04 1037**	**Cleaning Blade**	**1**
9	A172 6222	Blade Holder	1
10	AA08 0162	Bushing - 8mm	2
11	AB01 3847	Gear - 30Z	1
12	AA14 3738	Stepped Screw	2
13	AA02 0018	Magnet	2
14	A172 6235	Lower Guide Plate - Transfer	1
15	AA06 3353	Pressure Spring	2
16	AA08 0163	Bushing - 8mm	2
17	A109 6258	Roller	1
18	AA14 5216	Pin - 6x54.9	1
19	A109 6270	Right Positioning Plate	1
20	A109 6260	Toner Catch Pan	1
21	AA15 1822	Seal - 3x4x47	2
22	AA15 1860	Seal - 2x5.5x347.8	1
23	A172 6215	Transfer Belt Roller Bracket	1
24	**A172 6269**	**Roller Lubricant Bar**	**1**
25	A172 6267	Spring Plate	4
26	A172 6260	Spring Plate Support	4
27	A172 6266	Lubricant Bar Stopper	1
28	AA06 0653	Tension Spring	1

Index No.	Part No.	Description	Q ty Per Assembly
100	0720 0060B	Retaining Ring - M6	
101	0354 0060B	Screw - M4X6	
102	0720 0040B	Retaining Ring - M4	
103	0353 0050B	Philips Truss Head Screw - M3x5	
104	0951 3006B	Philips Screw With Flat Washer - M3x6	

31. Transport Unit (A172/A199)

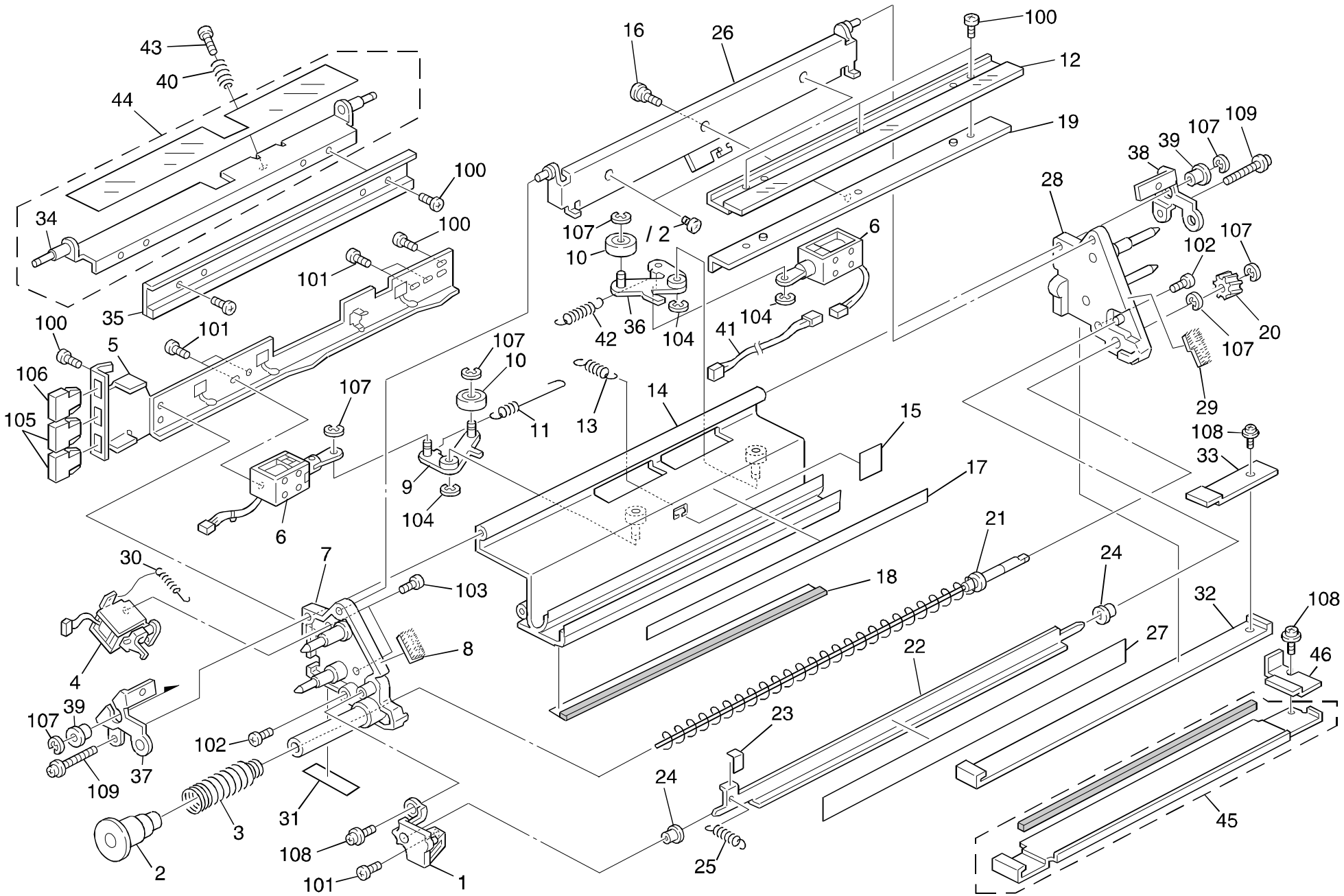


31. Transport Unit (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	AG05 1098	Transport Lever	1
2	AA00 0539	Decal - High Temperature	1
3	5053 0447	Bushing - 6mm	1
4	AF02 2091	Left Transport Roller	1
5	AB01 3835	Gear - 20Z	1
6	AA04 0023	Transfer Belt	2
7	A109 5310	Relay Harness - Transport Fan	1
8	A172 3855	Transport Tank	1
9	AF02 2070	Right Transport Roller	2
10	AX64 0042	Transport Fan Motor - DC24V 3.12W	2
11	A109 3859	Transport Fan Bracket	1
12	A109 3853	Rear Lift Arm - Transport	1
13	A109 3852	Front Lift Arm - Transport	1
14	A109 3857	Support Roller - Lift Arm	2
15	AA14 0517	Drive Shaft	1
16	A109 3858	Lift Arm Stay	1
17	5447 2681	Snap Ring	1
18	AA14 0518	Drive Shaft	2
19	AA06 2268	Spring	1
20	AA06 2267	Spring	1

Index No.	Part No.	Description	Q ty Per Assembly
100	0434 0080B	Philips Tapping Screw - M4x8	
101	0720 0040B	Retaining Ring - M4	
102	0314 0060B	Philips Pan Head Screw - M4x6	
103	1105 0199	Clamp	
104	0414 0082B	Binding Self Tapping Screw - M4x8	
105	0805 3366	Bushing - 6mm	

32. Belt Cleaning Unit (A172/A199)

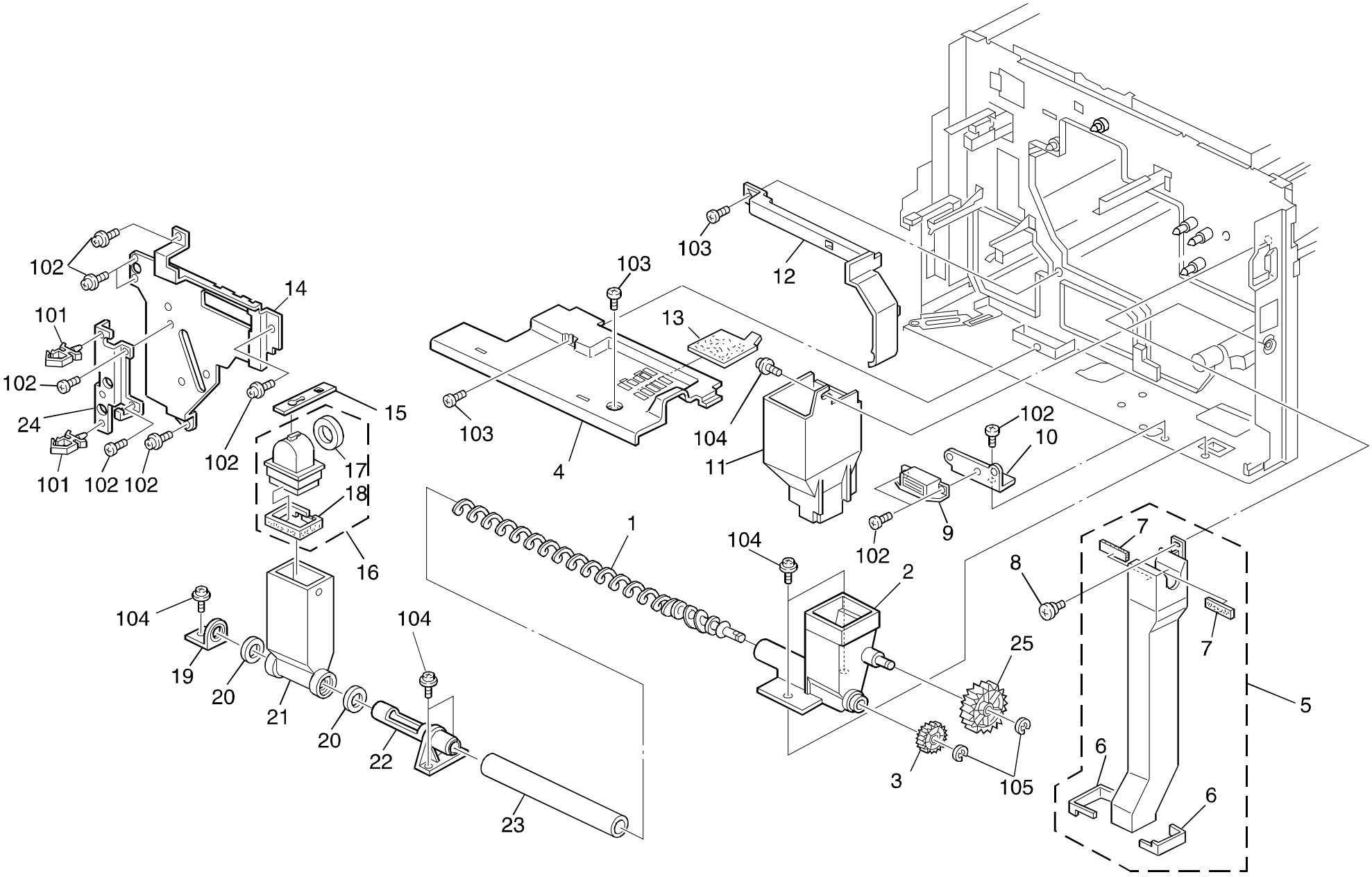


32. Belt Cleaning Unit (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
*	A172 6360	Belt Cleaning Unit	1
1	A109 6367	Front Holder - Entrance Seal	1
2	A109 6310	Toner Collection Cap	1
3	A109 6311	Toner Collection Spring	1
4	A109 6354	Cleaning Entrance Seal Solenoid	2
5	A172 6318	Cleaning Left Stay	1
6	A109 6344	Cleaning Blade Solenoid	1
7	A109 6305	Front Side Plate - Belt Cleaning	1
8	A109 6309	Front - Seal-10x20	1
9	A109 6338	Cleaning Blade Lever	1
10	A109 6342	Cleaning Blade Roller	2
11	A109 6350	Cleaning Blade Lever Spring	1
12	**A172 6308**	**Cleaning Blade**	**1**
13	A109 6349	Cleaning Blade Spring	1
14	A172 6352	Belt Cleaning Case	1
15	A109 6351	Spring Stopper Seal	1
16	AA14 3733	Stepped Screw M4	1
17	A109 9502	Seal - Cleaning Blade	1
18	A109 9504	Entrance Seal - Belt Cleaning Unit	1
19	A172 6301	Cleaning Blade Bracket	1
20	AB01 3848	Gear - 12Z	1
21	A109 6317	Toner Collection Auger	1
22	A109 6370	Entrance Seal Bracket	1
23	A109 6372	Entrance Seal Bracket Sheet	1
24	A109 6369	Entrance Seal Collar	2
25	A109 6352	Entrance Seal Spring	1
26	A172 6354	Cleaning Blade Bracket	1
27	A109 9503	Entrance Seal - Belt Cleaning	1
28	A109 6314	Rear Side Plate - Belt Cleaning	1
29	A109 6316	Rear Seal - 10x30	1
30	A109 6360	Release Spring	1
31	A109 6377	Front Side Plate Cushion	1
32	A109 6373	Base Plate - Belt Cleaning	1
33	A172 6301	Cleaning Blade Bracket	1
34	A172 6303	Lubricant Bar Bracket	1

Index No.	Part No.	Description	Q ty Per Assembly
35	**A172 6305**	**Lubricant Bar**	**1**
36	A172 6310	Lubricant Lever	1
37	A172 6312	Front Bracket - PTL	1
38	A172 6313	Rear Bracket - PTL	1
39	A172 6314	Bushing	2
40	A172 6315	Spring	1
41	A172 5388	Belt Cleaning Harness	1
42	A172 6316	Lever Spring	1
43	5875 2088	Shoulder Screw - M4	1
44	A172 6356	Lubricant Bar Bracket	1
45	A109 6373	Base Plate -belt Cleaning	1
46	A109 6375	Base Plate Bracket	1
47	A172 6330	Philips Pan Head Screw - M4	2
100	0314 0080B	Philips Pan Head Screw - M4x8	
101	0313 0060B	Philips Pan Head Screw - M3x6	
102	0952 4014B	Screw - M4x14	
103	0324 0080B	Philips Sunken Head Screw - M4x8	
104	0720 0030B	Retaining Ring - M3	
105	1102 6246	Connector - 3p	
106	1102 6260	Connector - Red 3p	
107	0720 0040B	Retaining Ring - M4	
108	0951 3006B	Philips Screw With Flat Washer - M3x6	
109	0313 0100B	Philips Pan Head Screw - M3x10	

33. Toner Collection Section (A172/A199)

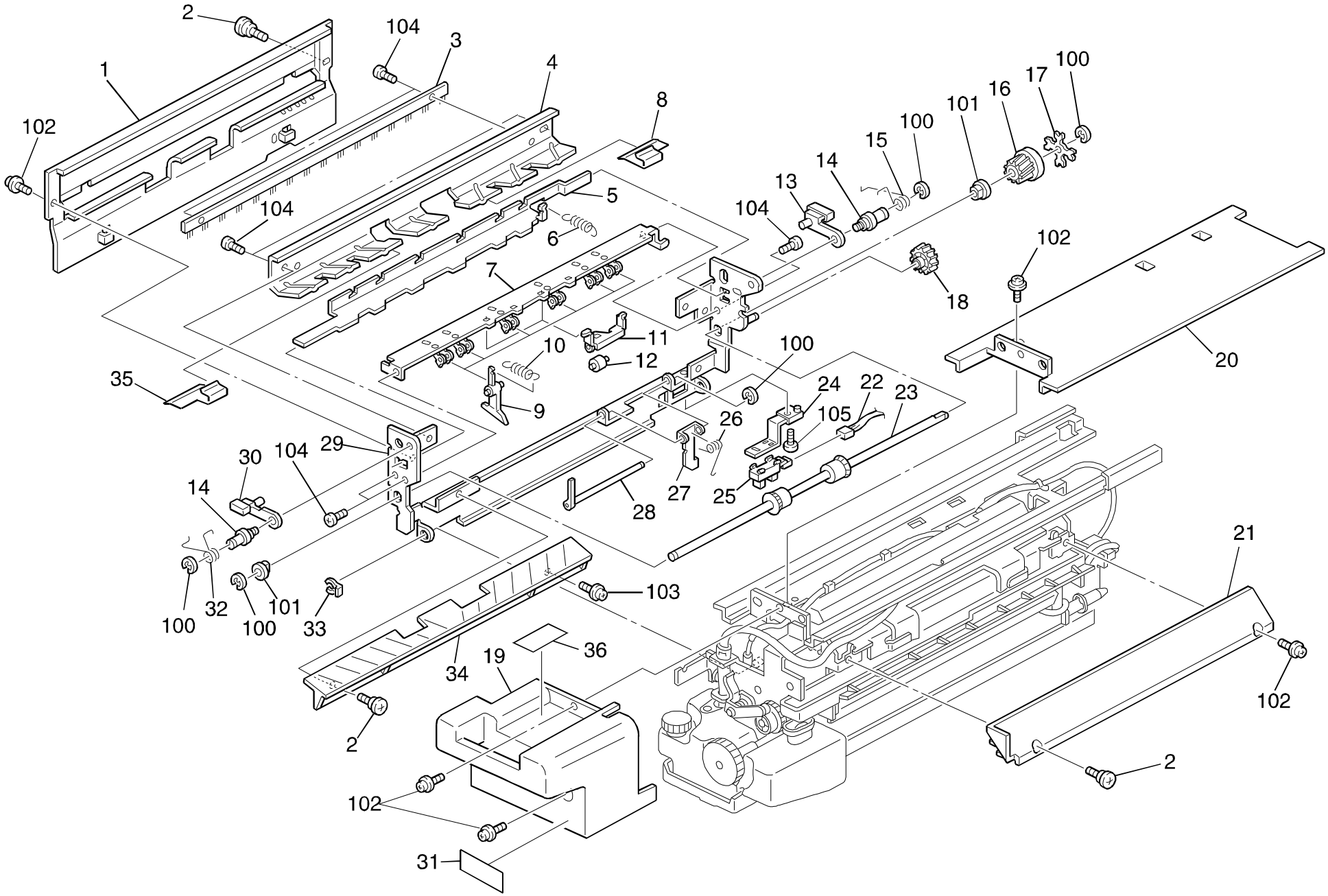


33. Toner Collection Section (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A109 6531	Lower Collection Coil	1
2	A109 6551	Joint Duct - Collection Bottle	1
3	AB01 3853	Gear - 18Z	1
4	A109 1384	Lower Inner Cover	1
5	A109 6561	Toner Collection Duct	1
6	A109 6564	Lower Seal - 8x13x7	2
7	A109 6563	Upper Seal - 3x10x36	2
8	5413 2298	Screw - M4	1
9	AG07 0004	Magnetic Catch	1
10	A109 1366	Magnet Catch Bracket	1
11	A109 3335	Developer Supply Funnel	1
12	A109 1397	Inner Cover - Transfer Unit	1
13	**AA01 2068**	**Inner Cooling Fan Filter**	**1**
14	A109 6140	Transfer Unit Cover Plate	1
15	A109 6541	Joint Fixing Band	1
16	A109 6523	Lower Collection Joint	1
17	A109 6547	Seal - 18mm	1
18	A109 6548	Small Duct Upper Seal	1
19	A109 6545	Collection Pipe Support Plate	1
20	A109 6546	Seal - 12mm	2
21	A109 6543	Toner Collection Duct	1
22	A109 6544	Collection Pipe - Transfer Belt	1
23	A109 6555	Lower Collection Tube	1
24	A109 1136	Flange Bracket	1
25	AB01 3854	Gear - 36Z	1

Index No.	Part No.	Description	Q ty Per Assembly
101	1105 0310	Wire Clamp	
102	0354 0060B	Screw - M4X6	
103	0344 0060F	Philips Truss Head Screw - M4x6	
104	0964 4008B	Tapping Screw With Flat Washer - M4x8	
105	0720 0040B	Retaining Ring - M4	

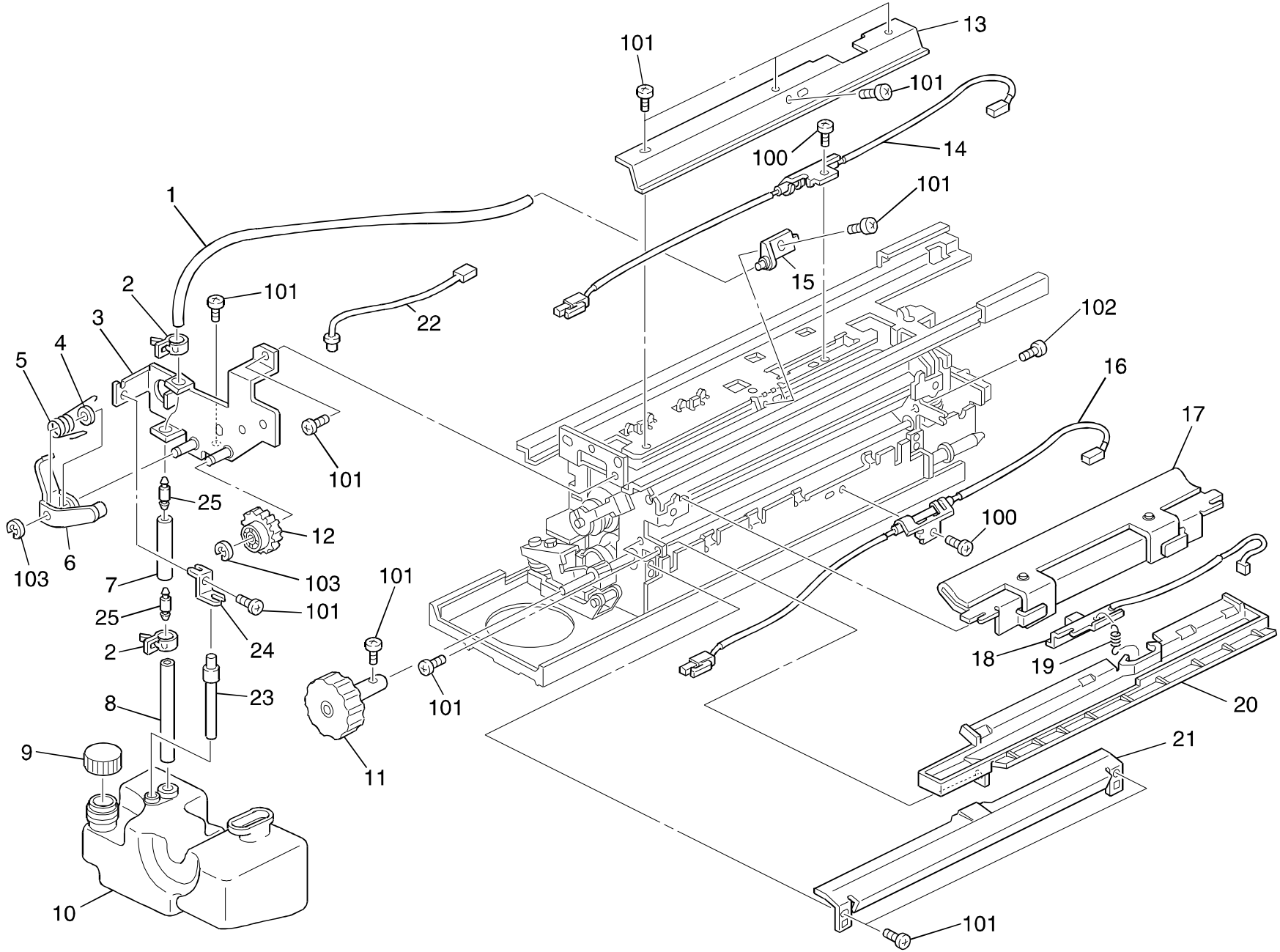
34. Fusing Unit 1 (A172/A199)



34. Fusing Unit 1 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
*	A172 7702	Fusing Unit - 115V	1
*	A172 7703	Fusing Unit - 230V	1
1	A172 4217	Paper Exit Cover	1
2	5840 1632	Stepped Screw	3
3	5215 4497	Exit Antistatic Brush	1
4	A109 4208	Upper Exit Guide Plate	1
5	A109 4204	Slider - Hot Roller Stripper	1
6	AA06 0189	Spring - Stripper Pawl Plate	1
7	A109 4201	Hot Roller Stripper Bracket	1
8	A109 4207	Exit Roller Guide	1
9	AE04 4016	Hot Roller Stripper	6
10	5208 6136	Spring - Hot Roller Stripper	6
11	A109 4212	Exit Roller Holder	2
12	AF04 0031	Upper Exit Roller	2
13	AG05 1105	Rear Release Lever - Exit	1
14	5215 4444	Pin	2
15	AA06 6063	Spring - Rear Release Lever	1
16	AB01 3320	Gear - 19Z	1
17	5442 4495	Slip Clutch	1
18	AB01 3819	Gear - 22Z	1
19	A109 4250	Front Fusing Cover	1
20	A109 4251	Upper Fusing Cover	1
21	A109 4253	Fusing Cover - Right	1
22	A109 5324	Exit Unit Relay Harness	1
23	AF02 0310	Exit Roller	1
24	A109 4210	Exit Sensor Bracket	1
25	AW02 0056	Photointerruptor - EE-SX4235A-P1	1
26	AA06 6226	Spring	1
27	A109 4215	Exit Sensor Feeler	1
28	AA11 1020	Sensor Feeler	1
29	A109 4205	Paper Exit Frame	1
30	AG05 1104	Front Release Lever - Exit	1
31	AA00 0339	Decal - Silicone Oil	1
32	AA06 6062	Spring - Front Release Lever	1
33	5447 2681	Snap Ring	1
34	A109 4209	Lower Exit Guide Plate	1
35	A109 4213	Exit Roller Front Guide	1
36	A172 6707	Decal - Warning	1
100	0720 0040E	Retaining Ring - M4	
101	0805 3366	Bushing - 6mm	
102	0951 4008B	Philips Screw With Washer - M4x8	
103	0951 4006B	Philips Screw With Washer - M4x6	
104	0314 0060B	Philips Pan Head Screw - M4x6	
105	0952 4014B	Screw - M4x14	

35. Fusing Unit 2 (A172/A199)

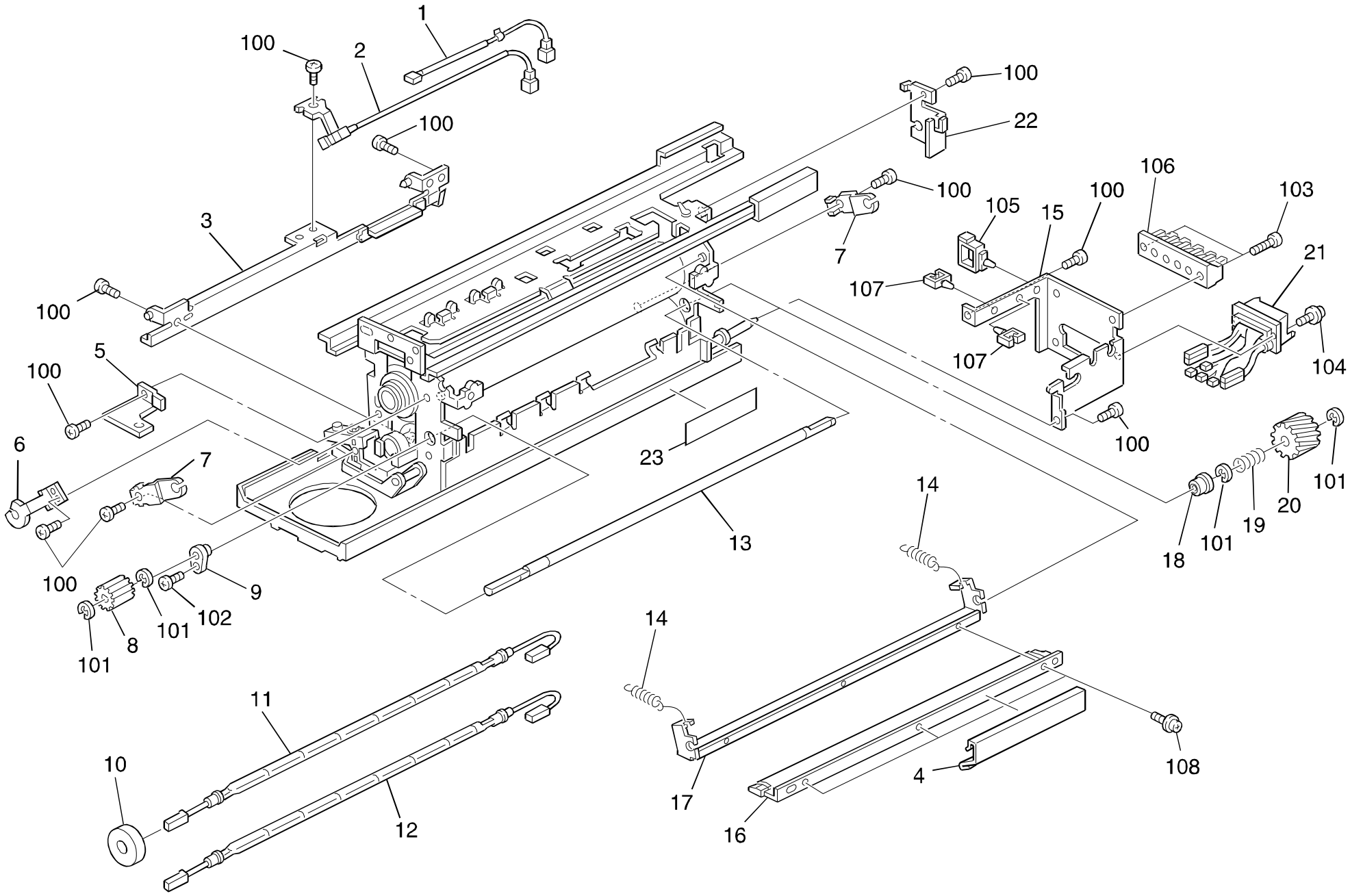


35. Fusing Unit 2 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	AA18 0008	Oil Tube - 320mm	1
2	5447 4241	Tube Clamp	2
3	A109 4230	Oil Supply Bracket	1
4	AA13 2025	Spacer - 1x8x12	1
5	AA06 6079	Spring - Oil Pump Lever	1
6	A030 4133	Oil Pump Lever	1
7	AA18 0035	Sleeve - Oil Pump	1
8	AA18 0009	Oil Tube - 120mm	1
9	AA03 6007	Oil Tank Cap	1
10	AA03 1008	Oil Tank	1
11	AG05 0070	Fusing Knob	1
12	AB01 7038	Gear - 32T	1
13	A109 4161	Spring Plate - Oil Supply Pad	1
14	A109 5406	Fusing Thermofuse - 150 C 15A	1
15	A109 4162	Oil Supply Bracket	1
16	A109 5408	Pressure Roller Thermofuse - 150 C 15A	1
17	**AE04 5015**	**Oil Supply Pad**	**1**
18	AW10 0023	Fusing Thermistor	1
19	AA06 0340	Spring - Thermistor	1
20	A072 4115	Upper Entrance Guide Plate	1
21	A109 4167	Lower Entrance Guide Plate	1
22	A109 5327	Relay Harness - Oil End Sensor	1
23	5209 5320	Oil End Sensor	1
24	5215 4411	Spring Plate	1
25	5415 4310	Valve - Oil Pump	2

Index No.	Part No.	Description	Q ty Per Assembly
100	0313 0060B	Philips Pan Head Screw - M3x6	
101	0314 0060B	Philips Pan Head Screw - M4x6	
102	0414 0082B	Binding Self Tapping Screw - M4x8	
103	0720 0060B	Retaining Ring - M6	

36. Fusing Unit 3 (A172/A199)

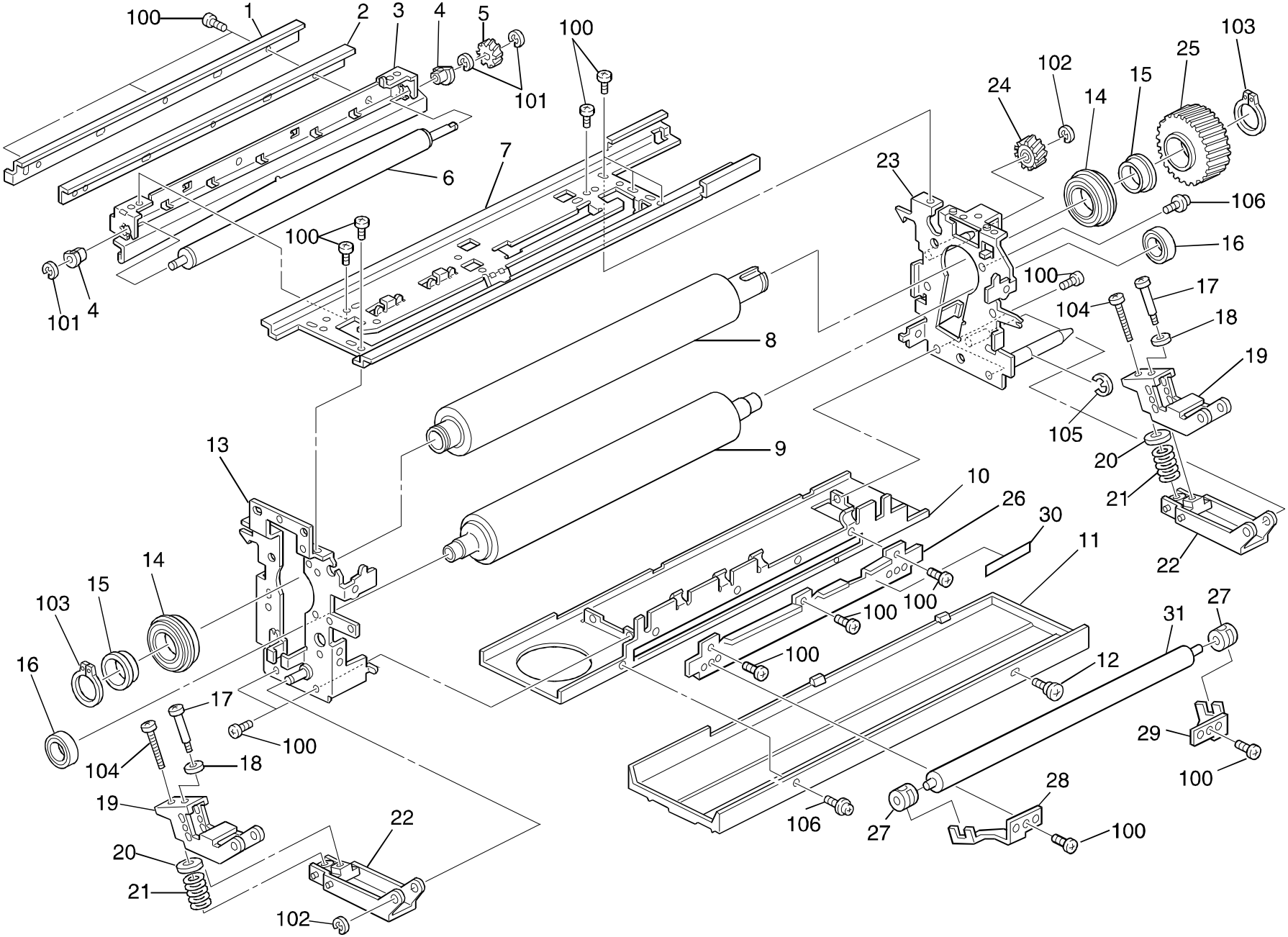


36. Fusing Unit 3 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A109 5324	Exit Unit Relay Harness	1
2	A172 5406	Pressure Roller Thermistor	1
3	A109 4182	Left Lower Stay - Fusing	1
4	A109 4153	Oil Guide	1
5	A109 4110	Oil Supply Stopper	1
6	A109 4107	Fusing Lamp Holder - Front	1
7	A109 4072	Pressure Roller Lamp Holder	2
8	AB01 3363	Gear - 16Z	1
9	AE03 1005	Bushing	1
10	AA15 2233	Gasket - 10x36	1
11	AX44 0073	Fusing Lamp - 115V 650W	1
11	AX44 0074	Heater - 230V - 700W - 100%	1
12	AX43 0016	Pressure Roller Lamp - 115V 400W	1
12	AX43 0017	Pressure Roller Lamp - 230V 400W	1
13	AA14 0512	Drive Shaft	1
14	AA06 2275	Release Spring	2
15	A109 4141	Fusing Harness Bracket	1
16	**AE04 1002**	**Oil Blade**	**1**
17	5215 4116	Oil Blade Holder	1
18	AE03 0013	Ball Bearing - 8x15.6x4mm	1
19	AA06 3097	Spring - Fusing Drive	1
20	AB01 3817	Gear - 30Z	1
21	A109 5304	Fusing Unit Harness	1
22	A109 4137	Fusing Lamp Holder - Rear	1
23	5203 4165	Fusing Thermofuse Decal	1

Index No.	Part No.	Description	Q ty Per Assembly
100	0314 0060B	Philips Pan Head Screw - M4x6	
101	0720 0060B	Retaining Ring - M6	
102	0314 0080B	Philips Pan Head Screw - M4x8	
103	0952 4014B	Screw - M4x14	
104	0952 3008B	Screw - M3x8	
105	1105 0292	Wire Saddle	
106	1101 0474	Connector - 4p	
107	1105 0230	Clamp	
108	0951 4008B	Philips Screw With Washer - M4x8	

37. Fusing Unit 4 (A172/A199)

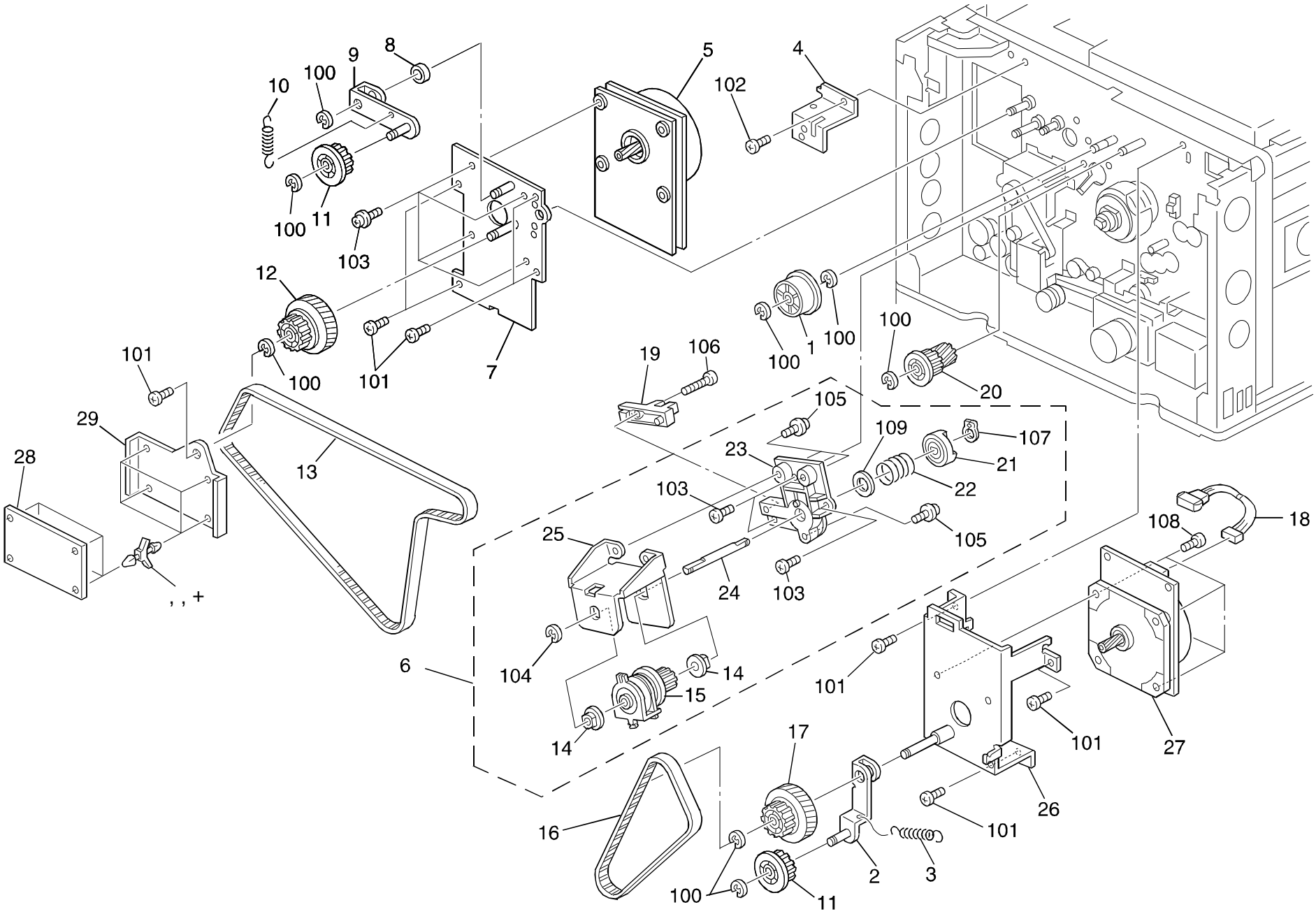


37. Fusing Unit 4 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A109 4192	Blade Bracket	1
2	A109 4194	Cleaning Roller Scraper	1
3	A109 4190	Cleaning Roller Bracket	1
4	AE03 1013	Bushing - 6mm	2
5	AB01 3820	Gear - 17Z	1
6	AE04 2022	Fusing Cleaning Roller	1
7	A109 4159	Upper Fusing Rail	1
8	**AE01 0012**	**Hot Roller**	**1**
9	**AE02 0056**	**Pressure Roller**	**1**
10	A109 4180	Right Lower Stay - Fusing	1
11	A109 4169	Oil Pan	1
12	5840 1632	Stepped Screw	1
13	A109 4100	Front Side Plate - Fusing	1
14	**AE03 0015**	**Ball Bearing - 35x47x7**	**2**
15	AE03 2017	Bushing - 30x40x14.5	2
16	**AE03 0019**	**Ball Bearing - 7x20x32**	**2**
17	AA14 3707	Stepped Screw - M5	2
18	AA13 2094	Spacer - Mounting Arm	2
19	A109 4063	Upper Pressure Lever	2
20	A030 4145	Pressure Spring Holder	2
21	AA06 3355	Pressure Spring	2
22	A109 4064	Lower Pressure Lever	2
23	A109 4130	Rear Side Plate - Fusing	1
24	AB01 3318	Gear - 17Z	1
25	AB01 3818	Gear - 61Z	1
26	A172 4171	Right Stay - Fusing	1
27	AE03 1020	Bushing - 6x12x8	2
28	A172 4172	Front Spring Plate	1
29	A172 4173	Rear Spring Plate	1
30	5203 4165	Fusing Thermofuse Decal	1
31	AE04 2021	Cleaning Roller	1

Index No.	Part No.	Description	Q ty Per Assembly
100	0314 0060B	Philips Pan Head Screw - M4x6	
101	0720 0040E	Retaining Ring - M4	
102	0720 0060B	Retaining Ring - M6	
103	0725 0300E	Retaining Ring C - M30	
104	0585 0161B	Hexagon Bolt - M5x16	
105	0720 0080B	Retaining Ring - M8	
106	0951 4008B	Philips Screw With Washer - M4x8	

38. Drive Section 1 (A172/A199)

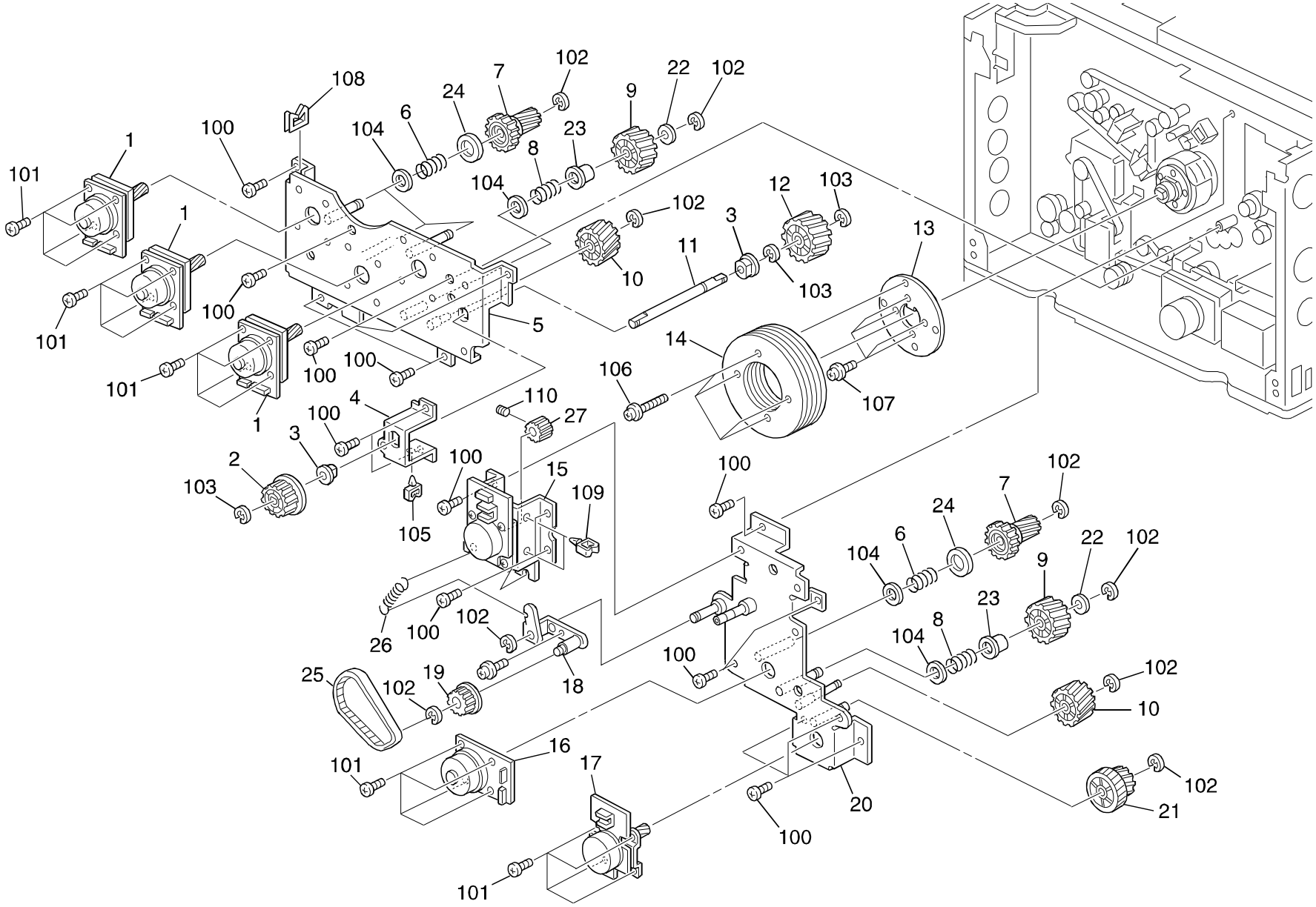


38. Drive Section 1 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	AB03 0442	Timing Pulley	1
2	A172 4754	Belt Tightener	1
3	AA06 0064	Tension Spring	1
4	A109 5762	Support Bracket - E	1
5	AX06 0093	Lubricant Brush Motor - DC36W	1
6	A109 4625	Spring Clutch Ass y	1
7	A109 4621	Lubricant Motor Bracket	1
8	AA13 2129	Spacer - 8x12x4.5	1
9	A109 4812	Tightener	1
10	5418 2859	Spring - Regist Roller (Front)	1
11	AB03 0266	Pulley - 28Z	2
12	AB01 7310	Gear - 26Z/89Z	1
13	AA04 3410	Timing Belt - 699 - S3MV	1
14	C105 2065	Ball Bearing	2
15	AX21 0055	Spring Clutch	1
16	AA04 3408	Timing Belt - 453 - S3MV	1
17	AB01 7309	Gear - 28Z/62Z	1
18	A109 5316	Relay Harness - Development Motor	1
19	AW02 0062	Photointerruptor - EE-SX4019-P15	1
20	AB01 7312	Gear - 19Z/26Z	1
21	A109 4630	Joint Clutch	1
22	AA06 3358	Pressure Spring	1
23	A109 4628	Clutch Holder	1
24	AA14 5248	Clutch Shaft	1
25	A109 4627	Clutch Holder Bracket	1
26	A109 4762	Drive Motor Bracket	1
27	AX06 0085	Color Development Drive - DC26W	1
28	A199 5113	Charge Wire Cleanermotor Driveboard	1
29	A172 5744	Bracket-cleaner Motor Drive Board	1

Index No.	Part No.	Description	Q ty Per Assembly
100	0720 0060B	Retaining Ring - M6	
101	0354 0060B	Screw - M4X6	
102	0434 0080B	Philips Tapping Screw - M4x8	
103	0951 4008B	Philips Screw With Washer - M4x8	
104	0720 0040B	Retaining Ring - M4	
105	0951 4006B	Philips Screw With Washer - M4x6	
106	0314 0160B	Philips Pan Head Screw - M4x16	
107	0727 0080E	Retaining Ring - M8	
108	0950 4008B	Philips Screw With Spring Washer - M4x8	
109	0807 7049	Spacer - 12.3x18x0.2T	
110	1105 0192	Locking Support	

39. Drive Section 2 (A172/A199)

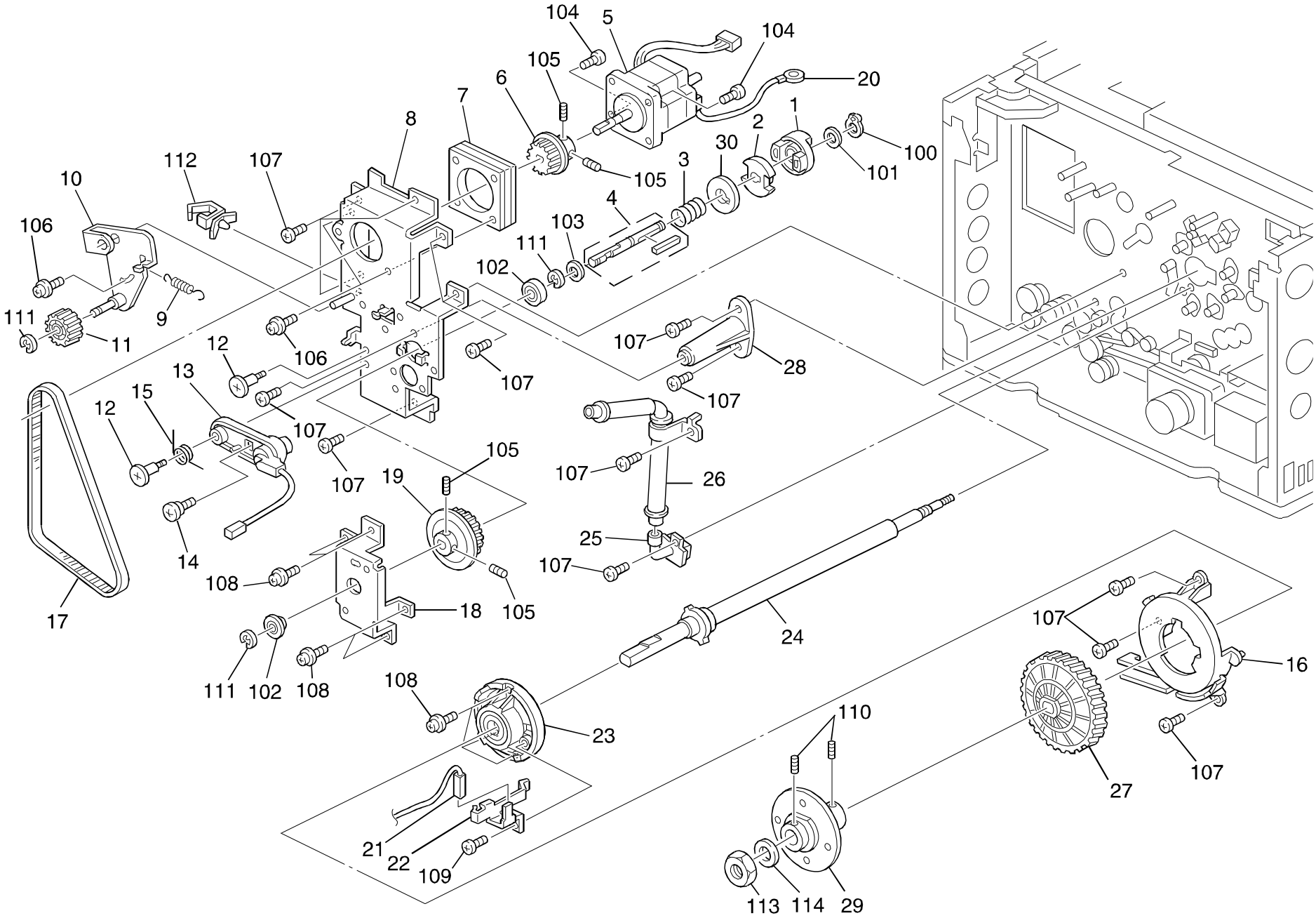


39. Drive Section 2 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	AX05 0067	Color Sleeve Motor - DC9.3W	3
2	AB03 0440	Timing Pulley - 28Z	1
3	5053 0223	Bushing - 8mm	2
4	A109 4723	Support Plate	1
5	A109 4725	Sleeve Motor Bracket	1
6	AA06 3357	Pressure Spring	4
7	AB01 7307	Gear - 20Z/50Z	4
8	AA06 3356	Pressure Spring	2
9	AB01 3864	Gear - 30Z	2
10	AB01 3865	Gear - 26Z	2
11	AA14 0515	Drive Shaft	1
12	AB01 3823	Gear - 31Z	1
13	A109 4652	Fly Wheel - 190	1
14	A109 4651	Fly Wheel - 195	1
15	AX05 0094	Drum Drive Motor - DC6.5W	1
16	AX05 0070	Black Sleeve Motor - DC9.3W	1
17	AX05 0066	Black Dev.drive Motor - DC7.2W	1
18	A172 4663	Tightener Bracket	1
19	AB03 0317	Gate Tightener	1
20	A172 4742	Motor Bracket	1
21	AB01 7308	Gear - 25Z/56Z	1
22	AA13 2133	Spacer	2
23	A109 4727	Collar - 10x17x18mm	2
24	AA13 2094	Spacer - Mounting Arm	4
25	AA04 3407	Timing Belt - 448 S2MV	1
26	AA06 0042	Spring - Release Cleaning Blade	1
27	AB03 0528	Timing Pulley - 28Z	1

Index No.	Part No.	Description	Q ty Per Assembly
100	0354 0060B	Screw - M4X6	
101	0950 3010B	Philips Screw With Spring Washer - M3x10	
102	0720 0040E	Retaining Ring - M4	
103	0720 0060E	Retaining Ring - M6	
104	0807 7049	Spacer - 12.3 X 18mm X 0.2t	
105	1105 0231	Clamp	
106	0951 5040B	Screw - M5x40	
107	0951 4008B	Philips Screw With Washer - M4x8	
108	1105 0349	Edge Saddle	
109	1105 0310	Wire Clamp	
110	0575 0050E	Hexagon Headless Set Screw - M5x5	

40. Drive Section 3 (A172/A199)

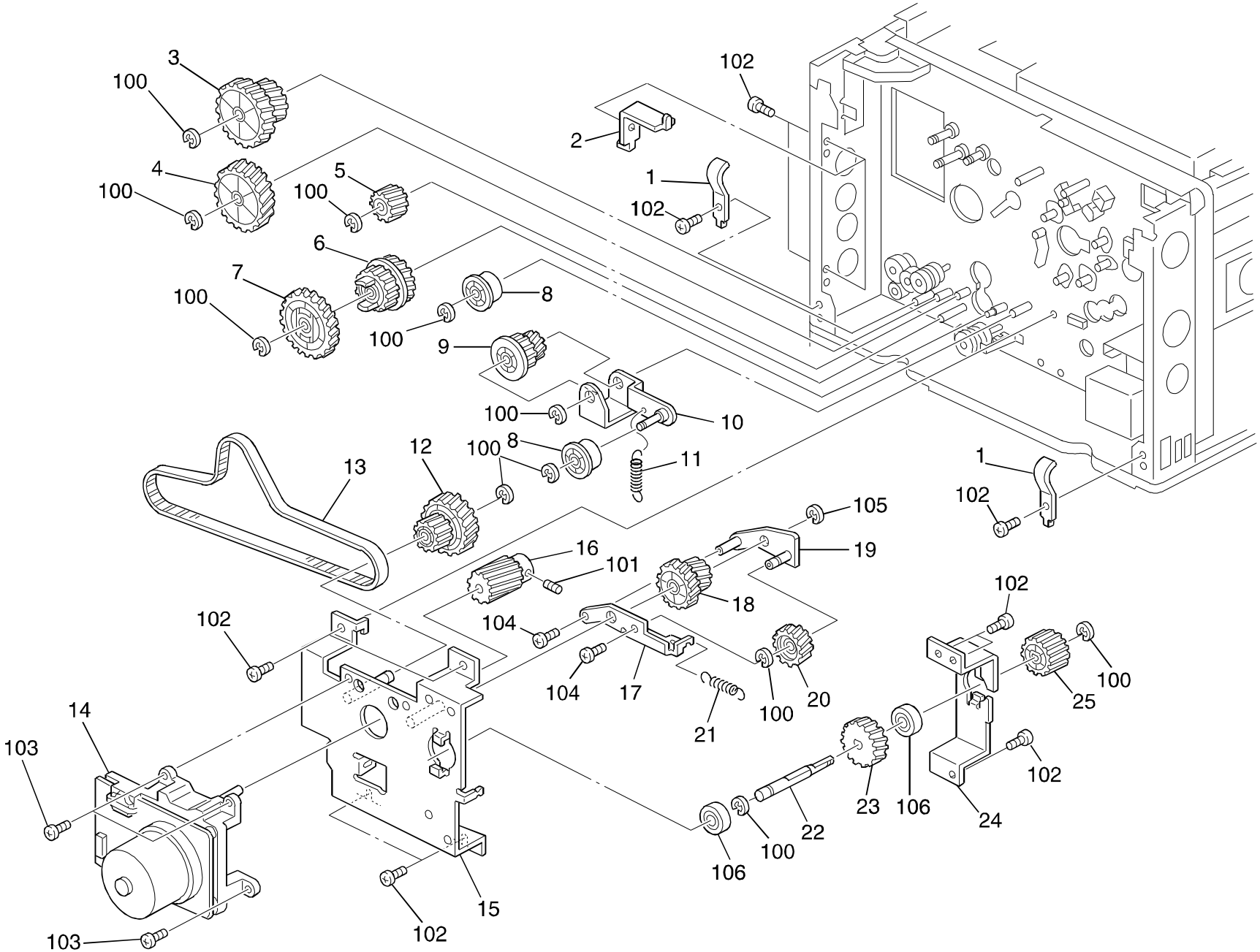


40. Drive Section 3 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A109 4674	Front Joint - Transfer Belt	1
2	A109 4675	Rear Joint - Transfer Belt	1
3	AA06 3359	Pressure Spring	1
4	A109 4679	Transfer Belt Drive Shaft	1
5	AX06 0088	Transport Belt Motor - DC24V 2A	1
6	AB03 0444	Timing Pulley - 66Z	1
7	A109 4670	Motor Cushion	1
8	A109 4671	Transfer Belt Motor Bracket	1
9	5432 3265	Spring Lock Lever	1
10	A109 4676	Belt Tightner	1
11	AB03 0445	Timing Pulley - 44Z	1
12	AA14 3708	Stepped Screw - M4	2
13	AD02 1095	Transfer Roller Receptacle	1
14	5919 2201	Shoulder Screw - M4	1
15	AA06 6231	Receptacle Spring	1
16	A109 1132	Drum Flange Cover	1
17	AA04 3234	Timing Belt - 200 TN15 10.0	1
18	A109 4673	Pulley Cover	1
19	AB03 0443	Timing Pulley - 88Z	1
20	A100 5378	Grounding Wire	1
21	A109 5390	Drum Bias Cable	1
22	A109 4655	Drum Shaft Terminal	1
23	A109 4653	Drum Shaft Holder	1
24	A172 2270	Drum Drive Shaft	1
25	A109 2380	ID Sensor Duct	1
26	A109 2385	Duct Tube Ass y	1
27	AB03 0527	Timing Pulley - 112Z	1
28	A109 6150	Positioning Screw	1
29	A109 4650	Fly-wheel Support Plate	1
30	A172 4680	Spacer	1

Index No.	Part No.	Description	Q ty Per Assembly
100	0725 0120E	Retaining Ring C - M12	
101	0807 7049	Spacer - 12.3 X 18mm X 0.2t	
102	0741 3808	Ball Bearing - 8x16x5mm	
103	0807 5053	Washer	
104	0354 0100B	Screw - M4x10	
105	0574 0060E	Hexagon Headless Set Screw - M4x6	
106	0951 4006B	Philips Screw With Washer - M4x6	
107	0354 0060B	Screw - M4X6	
108	0951 4008B	Philips Screw With Washer - M4x8	
109	0414 0082B	Binding Self Tapping Screw - M4x8	
110	0575 0050E	Hexagon Headless Set Screw - M5x5	
111	0720 0060E	Retaining Ring - M6	
112	1105 0310	Wire Clamp	
113	0710 0100B	Hexagonal Nut - M10	
114	0701 0100B	Flat Washer - 10	

41. Drive Section 4 (A172/A199)

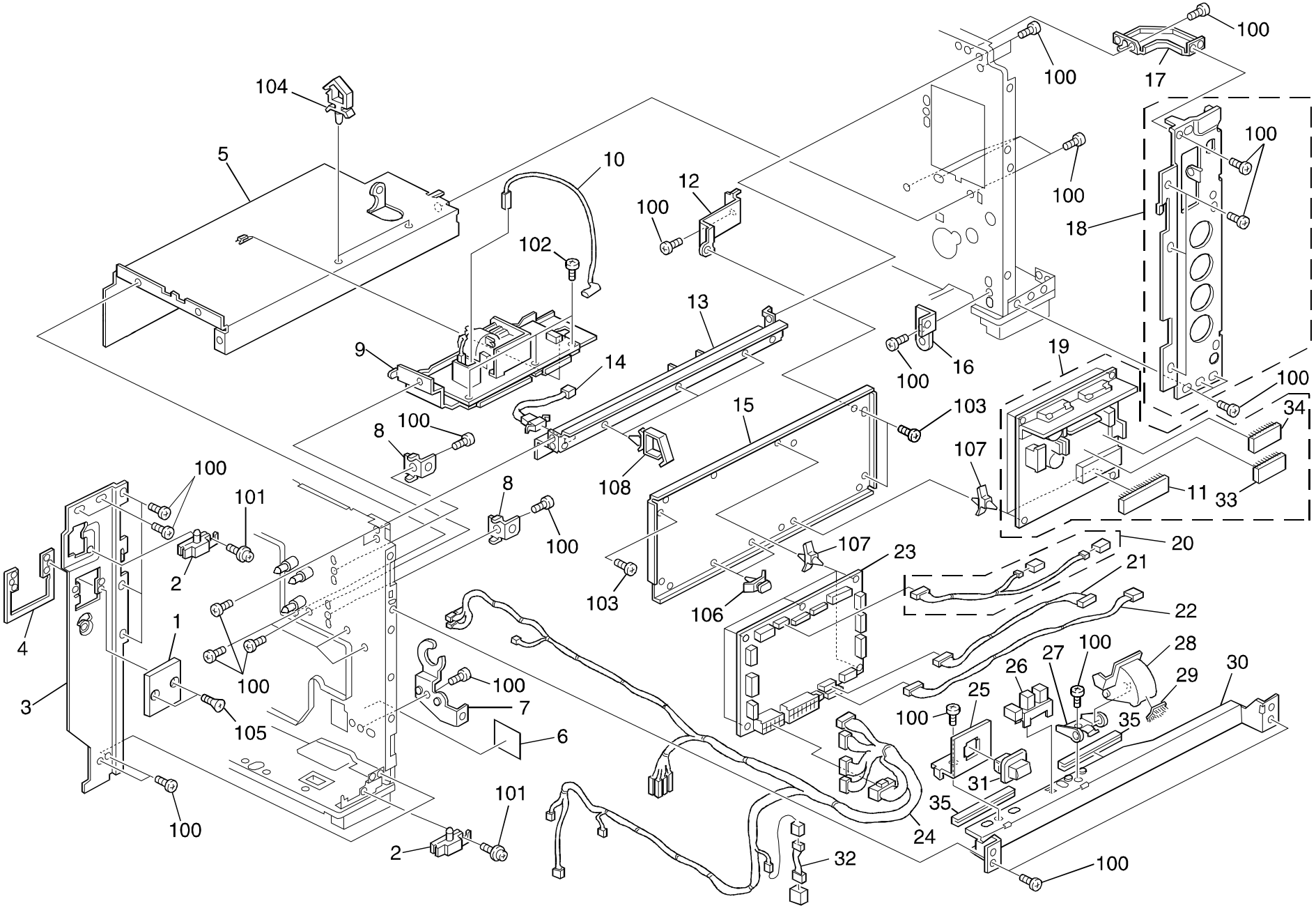


41. Drive Section 4 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A033 7558	Grounding Plate	2
2	A109 5751	Main Control Board Hinge	2
3	AB01 7320	Gear - 29Z/44Z	1
4	AB01 3837	Gear - 42Z	1
5	AB01 3838	Gear - 17Z	1
6	AB01 7318	Gear - 29Z/33Z	1
7	AB01 3836	Gear - 46Z	1
8	AB03 0446	Timing Pulley	2
9	AB01 7321	Gear - 20Z/30Z	1
10	A109 4712	Belt Tightner	1
11	AA06 0559	Release Spring	1
12	AB01 7316	Gear - 20Z/43Z	1
13	AA04 3409	Timing Belt - 600 - S3MV	1
14	AX06 0104	Motor - 36W	1
15	A109 4692	Transport Motor Bracket	1
16	AB01 3870	Gear - 22Z	1
17	A109 4697	Idle Gear Bracket - Rear	1
18	AB01 7396	Gear - 20Z/30Z	1
19	A109 4695	Idle Gear Bracket - Front	1
20	AB01 3832	Gear - 28Z	1
21	5447 2743	Lever Spring	1
22	AA14 5220	Drive Shaft	1
23	AB01 3834	Gear - 30Z	1
24	A109 4694	Fusing Drive Gear Bracket	1
25	AB01 3835	Gear - 20Z	1

Index No.	Part No.	Description	Q ty Per Assembly
100	0720 0060B	Retaining Ring - M6	
101	0575 0050E	Hexagon Headless Set Screw - M5x5	
102	0354 0060B	Screw - M4X6	
103	0354 0100B	Screw - M4x10	
104	0314 0060B	Philips Pan Head Screw - M4x6	
105	0720 0040E	Retaining Ring - M4	
106	0740 3008	Ball Bearing - 8x22x7	

42. Electrical Section 1 (A172/A199)

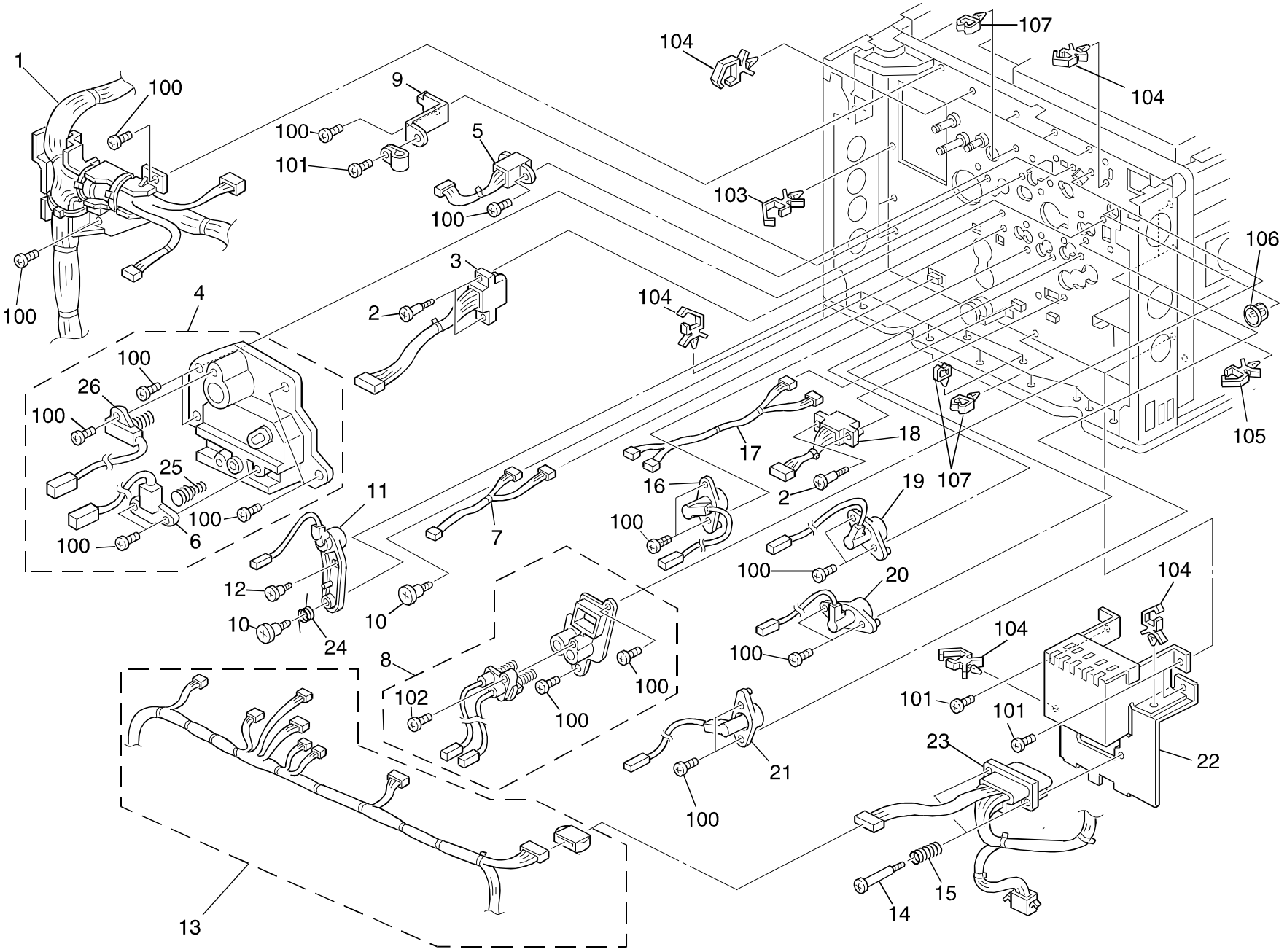


42. Electrical Section 1 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A126 1351	Key Counter Cover	1
2	A060 1325	Right Hinge Pin	2
3	A109 1101	Front Right Frame	1
4	5420 1515	Plate - Key Counter	1
5	A109 1086	Upper Paper Feed Stay	1
6	AA17 4018	Sheet - 45x45	1
7	A109 2697	Front Holder - By-pass Feed Table	1
8	A109 5755	Front Holder - Interface 1	2
9	AZ31 0017	High Voltage Supply Board - D	1
10	A109 5391	High Voltage Harness	1
11	A172 5184	IC - UPD78P312ACW	1
12	A109 5758	Rear Holder - Interface 1	1
13	A109 1092	Right Upper Stay	1
14	A109 5312	Relay Harness - Polygon Motor	1
15	A109 5747	Interface Board 1 Bracket	1
16	A109 2722	Stay Angle	1
17	A109 1109	Frame Bracket - Rear Upper Right	1
18	A109 1107	Rear Right Frame	1
19	A172 5182	Transport Drive Board	1
20	A109 5329	Polygon Motor Relay Harness	1
21	A109 5330	AC Power Pack Relay Harness	1
22	A109 5315	Relay Harness - Brush Motor	1
23	A172 5111	Relay Control Board	1
24	A199 5304	DC Main Harness	1
25	A109 2696	Latch Bracket - By-pass	1
26	AW02 0065	Photointerruptor	1
27	A109 2703	Sensor Feeler Holder	1
28	A109 2701	Sensor Feeler - By-pass Feed Table	1
29	AA15 2234	Seal - 6x10x11	1
30	A109 2707	Right Upper Stay	1
31	AG07 1007	Latch - By Pass Feed Table	1
32	A109 5317	Key Counter Relay Harness	1
33	A109 5156	IC - MB7111LM	1
34	A109 5155	IC - MB7111LM	1
35	5922 2642	Edging	2

Index No.	Part No.	Description	Q ty Per Assembly
100	0434 0080B	Philips Tapping Screw - M4x8	
101	0964 4008B	Tapping Screw With Flat Washer - M4x8	
102	0314 0060B	Philips Pan Head Screw - M4x6	
103	0354 0060B	Screw - M4X6	
104	1105 0292	Wire Saddle	
105	0323 0060B	Philips Sunk Screw - M3x6	
106	1105 0409	Spacer	
107	1105 0193	Nylon Stud	
108	1105 0413	Harness Clamp	

43. Electrical Section 2 (A172/A199)

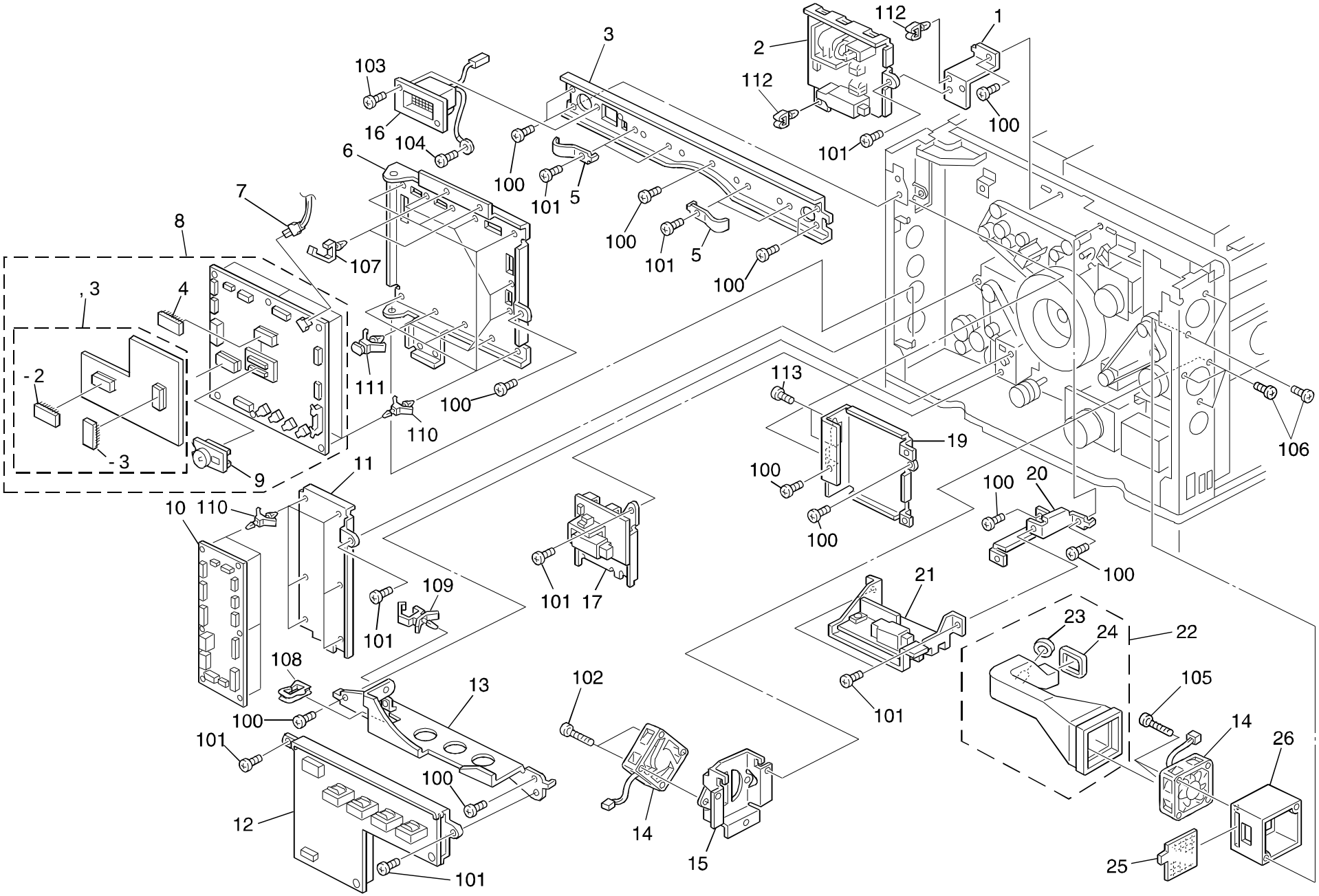


43. Electrical Section 2 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A199 5307	DC Main Harness - Rear Upper	1
2	AA14 3301	Stepped Screw - M3x4	4
3	A109 5320	Development Relay Harness - 1	1
4	A172 3608	Cleaning Receptacle	1
5	A109 5318	Erase Lamp Relay Harness	1
6	A172 3606	Cleaning Bias Receptacle	1
7	A172 5386	Heater Harness - T/S Unit	1
8	A109 2300	Charge Corona Receptacle	1
9	A109 5798	Harness Clamp Plate	1
10	AA14 3708	Stepped Screw - M4	2
11	AD02 1103	Transfer Belt Receptacle	1
12	5919 2201	Shoulder Screw - M4	1
13	A199 5310	DC Main Harness - Rear Lower	1
14	5446 5832	Connector Guide Pin	2
15	AA06 3068	Spring Connector	2
16	A109 3315	Development Bias - Terminal - Y	1
17	A109 5314	Relay Harness - Transport Unit	1
18	A109 5321	Development Relay Harness - 2	1
19	A109 3314	Development Bias Retminal - M	1
20	A109 3313	Development Bias - Terminal - C	1
21	A109 3312	Development Bias Terminal - B	1
22	A109 1115	Fusing Connector Bracket	1
23	A109 5382	AC Main Harness	1
24	AA06 6227	Receptacle Spring	1
25	AA06 3026	Terminal - Spring	1
26	A109 2321	Pre Cleaning Corona Receptacle	1

Index No.	Part No.	Description	Q ty Per Assembly
100	0354 0060B	Screw - M4X6	
101	0434 0080B	Philips Tapping Screw - M4x8	
102	0433 0102B	Tapping Screw - M3x10	
103	1105 0316	Clamp	
104	1105 0413	Harness Clamp	
105	1105 0291	Wire Saddle	
106	1106 0459	Bushing - 20.2mm	
107	1105 0199	Clamp	

44. Electrical Section 3 (A172/A199)

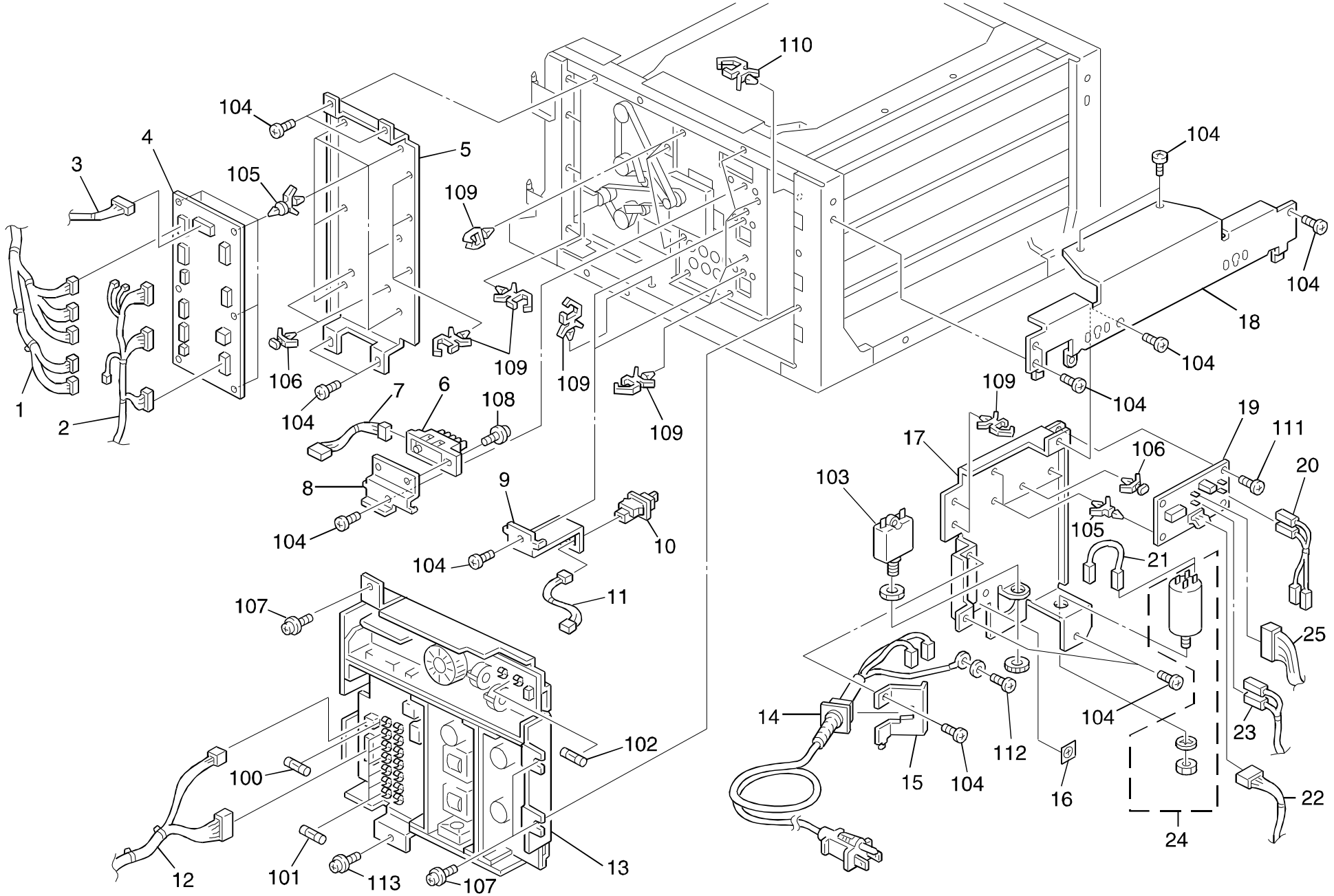


44. Electrical Section 3 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A109 5761	Support Bracket - T	1
2	AZ32 0068	High Vol.supply Board - T1,PCC,BR	1
3	A109 1119	Rear Support Stay	1
4	A172 5129	IC - Main Control 30	1
5	A033 7558	Grounding Plate	4
6	A109 5741	Main Control Board Bracket	1
7	AW03 0036	Optics Fiber Cable - 1000mm	1
8	A172 5108	Main Control Board	1
9	A172 5121	NV RAM Board	1
10	A199 5119	2nd Relay Board	1
11	A172 5743	Interface Board 2 Bracket	1
12	AZ31 0016	High Voltage Supply Board - B	1
13	A109 5765	Board Bracket - B	1
14	AX64 0041	Cooling Fan Motor - DC24 7.64W	2
15	A109 5771	Fusing Exhaust Fan Bracket	1
16	A096 7636	DF Harness - 115V	1
16	A096 5404	DF Harness - 230V	1
17	AZ30 0038	High Voltage Supply Board - T2	1
18	A172 5123	ROM Board - Main	1
19	A172 5742	Board Brakcet	1
20	A172 5760	Power Pack Bracket	1
21	AZ30 0042	DC Power Pack - C.G	1
22	A109 2390	Charge Corona Duct - Large	1
23	AA15 1841	Duct Seal - 2x5x84.5	1
24	AA15 1840	Duct Seal - 2x5x34.5	1
25	**A109 2410**	**Filter Charge Inlet Fan**	**1**
26	A109 2403	Charge Corona Duct - Small	1
27	A172 5114	IC - Main Control 10	1
28	A172 5115	IC - Main Control 20	1

Index No.	Part No.	Description	Q ty Per Assembly
100	0434 0080B	Philips Tapping Screw - M4x8	
101	0354 0060B	Screw - M4X6	
102	0314 0300B	Philips Pan Head Screw - M4x30	
105	0413 0302B	Tapping Screw - M3x10	
106	0314 0120B	Philips Pan Head Screw - M4x12	
107	1105 0291	Wire Saddle	
108	1105 0349	Edge Saddle	
109	1105 0278	Harness Clamp	
110	1105 0193	Nylon Stud	
111	1105 0409	Spacer	
112	1105 0199	Clamp	
113	0802 5146	Tapping Screw - M3x8	
114	0353 0060F	Philips Truss Head Screw - M3x6	
115	0950 4008M	Screw - M4x8	

45. Electrical Section 4 (A172/A199)

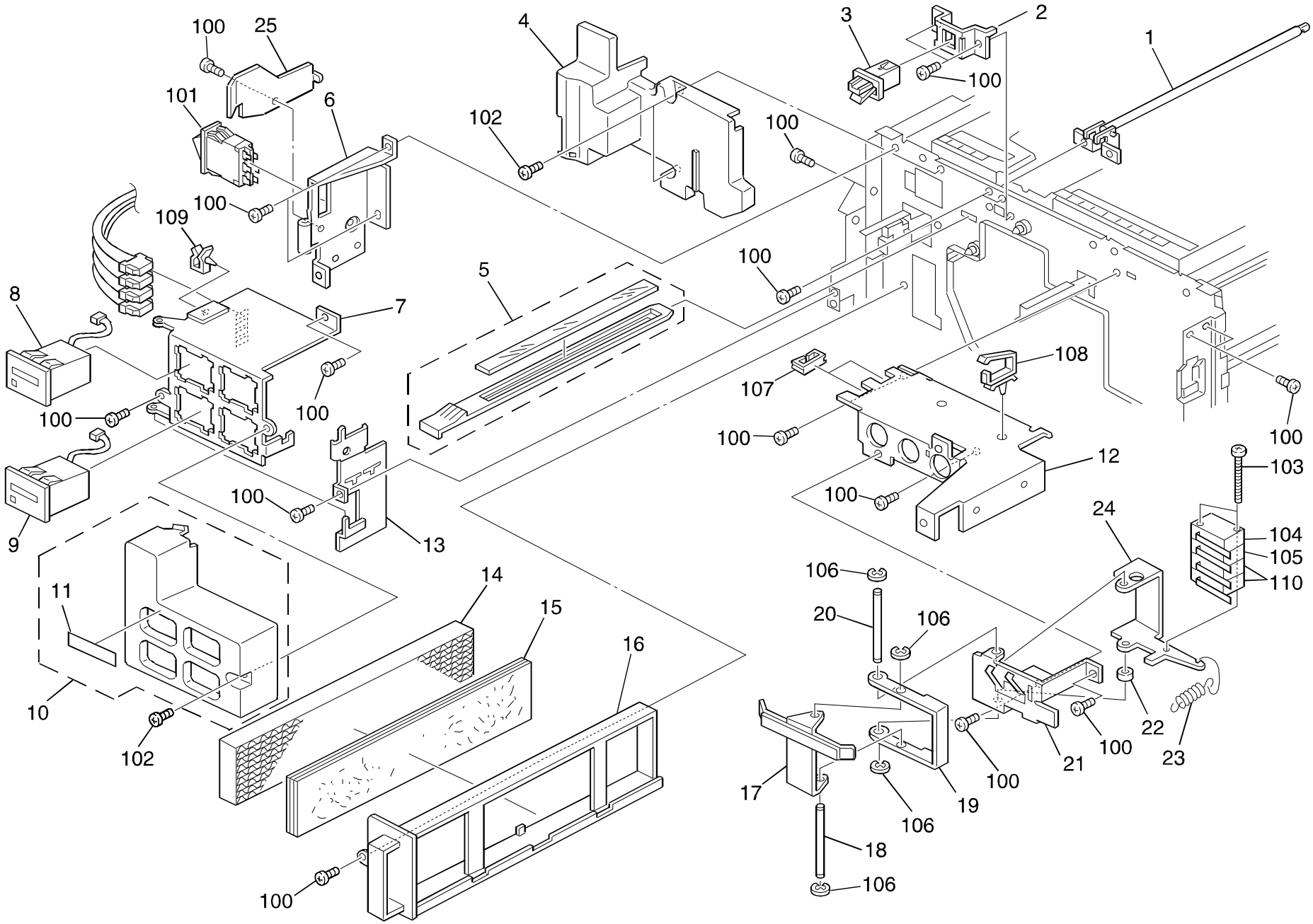


45. Electrical Section 4 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A513 5351	Front Harness - Paper Feed Unit	1
2	A513 5350	Rear Harness - Paper Feed Unit	1
3	A109 5355	Relay Harness - Paper Tray Unit	1
4	A513 5121	Paper Feed Interface Board	1
5	A513 1172	Interface Board Bracket	1
6	AW50 0010	Push Switch	1
7	A513 5354	Relay Harness - Paper Size Sensor	1
8	A513 2832	Paper Size Sensor Bracket	1
9	A513 2836	Tray Set Sensor Bracket	2
10	AW50 0012	Push Switch	2
11	A513 5357	Relay Harness - Tray Set Sensor	2
12	A172 5356	DC Relay Harness	1
13	AZ24 0032	DC Power Supply Unit - 115V	1
13	AZ24 0037	DC Power Supply Unit - 230V	1
14	A085 5571	Power Supply Cord - 115V	1
14	A085 5671	Power Supply Cord - 230V	1
15	A513 1178	Power Supply Cord Bracket	1
16	AA00 1190	Decal - Ground	1
17	A513 1179	Noise Filter Bracket	1
18	A513 1033	Left Middle Frame	1
19	A172 5431	Noise Filter Board - 115V	1
19	A172 5631	Noise Filter Board - 230V	1
20	A513 5380	AC Harness - Noise Filter Board	1
21	A513 5381	Relay Harness	1
22	A172 5383	Heater Harness - LCT	1
23	A513 5384	AC Harness - Noise Filter Board	1
24	A513 5542	Noise Filter - 115V	1
24	A513 5642	Noise Filter - 220V	1
25	A172 5385	Heater Harness - Transfer	1

Index No.	Part No.	Description	Q ty Per Assembly
100	1107 0391	Fuse - 5A, 125V	
101	1107 0392	Fuse (Glass Case) - 6.3A - 125V	
102	1107 0629	Fuse (Ceramic Case) - 15A - 125V	
103	1107 0693	Circuit Breaker - 18A 250V (115V)	
103	1107 0473	Circuit Breaker - 250V 10A (230V)	
104	0434 0080B	Philips Tapping Screw - M4x8	
105	1105 0193	Nylon Stud	
106	1105 0409	Spacer	
107	0964 4008B	Tapping Screw With Flat Washer - M4x8	
108	0951 3008B	Philips Screw With Flat Washer - M3x8	
109	1105 0310	Wire Clamp	
110	1105 0413	Harness Clamp	
111	0314 0080M	Philips Pan Head Screw - M4x8	
112	0801 0142	Screw - Spring Washer - M5x8	
113	0954 4008B	Philips Screw - M4x8	

46. Frame Section 1 (A172/A199)

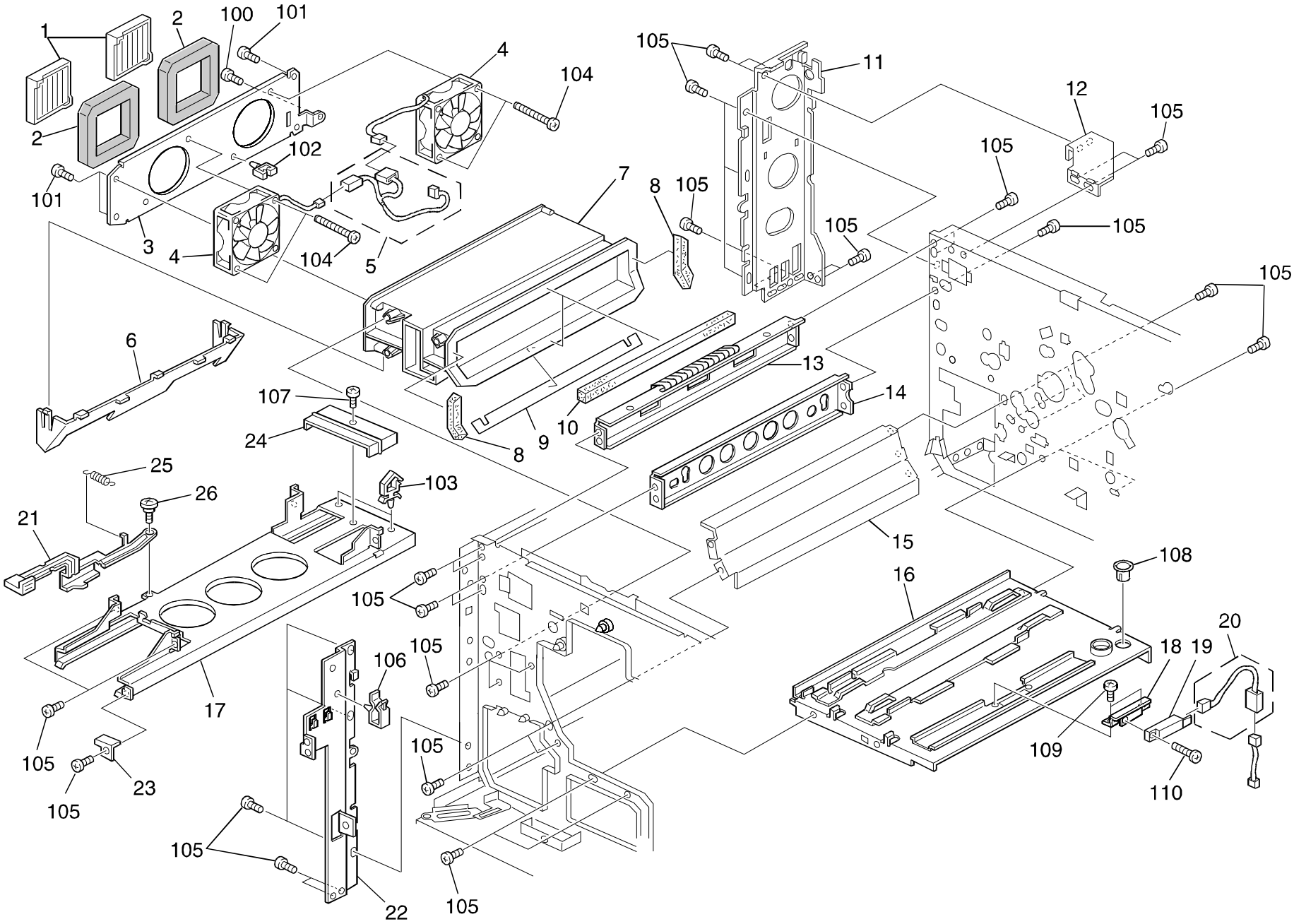


46. Frame Section 1 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A109 5726	Scanner Stopper Rod	1
2	A172 3437	Latch Bracket-toner Tank	1
3	A172 3474	Latch	1
4	A109 1387	Inner Cover - Main Switch	1
5	A109 2077	Toner Shielding Grass	1
6	A109 1104	Front Upper Left Frame	1
7	A109 5781	Total Counter Bracket	1
8	AX31 0017	Black Total Counter	1
9	AX31 0019	Color Total Counter	1
10	A109 1393	Inner Cover - Total Counter	1
11	A109 1555	Decal - Total Counter	1
12	A109 1102	Front Upper Right Bracket	1
13	A109 5782	Counter Bracket Hinge	1
14	**AA01 0080**	**Ozone Filter**	**1**
15	**AA01 2084**	**Development Filter**	**1**
16	A109 3307	Filter Holder	1
17	A109 5786	Safety Switch Lever	1
18	AA14 5525	Pin - 4x66.2	1
19	A109 5792	Safety Switch Link	1
20	AA14 5526	Pin - 5x63	1
21	A109 5789	Safety Switch Bracket	1
22	C202 3102	Collar - 6.35x10x4mm	1
23	AA06 0308	Spring	1
24	A109 5794	Safety Switch Holder	1
25	A109 1311	Left Door Stopper	1

Index No.	Part No.	Description	Q ty Per Assembly
100	0434 0080B	Philips Tapping Screw - M4x8	
101	1204 1545	Main Switch	
102	0344 0060F	Philips Truss Head Screw - M4x6	
103	0801 1007	Philips Pan Head Screw - M10x7	
104	1204 2356	Micro Switch - AM51612A531	
105	1204 2376	Microswitch : V-162-3C25	
106	0720 0030B	Retaining Ring - M3	
107	1105 0349	Edge Saddle	
108	1105 0292	Wire Saddle	
109	1105 0200	Clamp	
110	1204 2355	Micro Switch - AM51632A531	

47. Frame Section 2 (A172/A199)

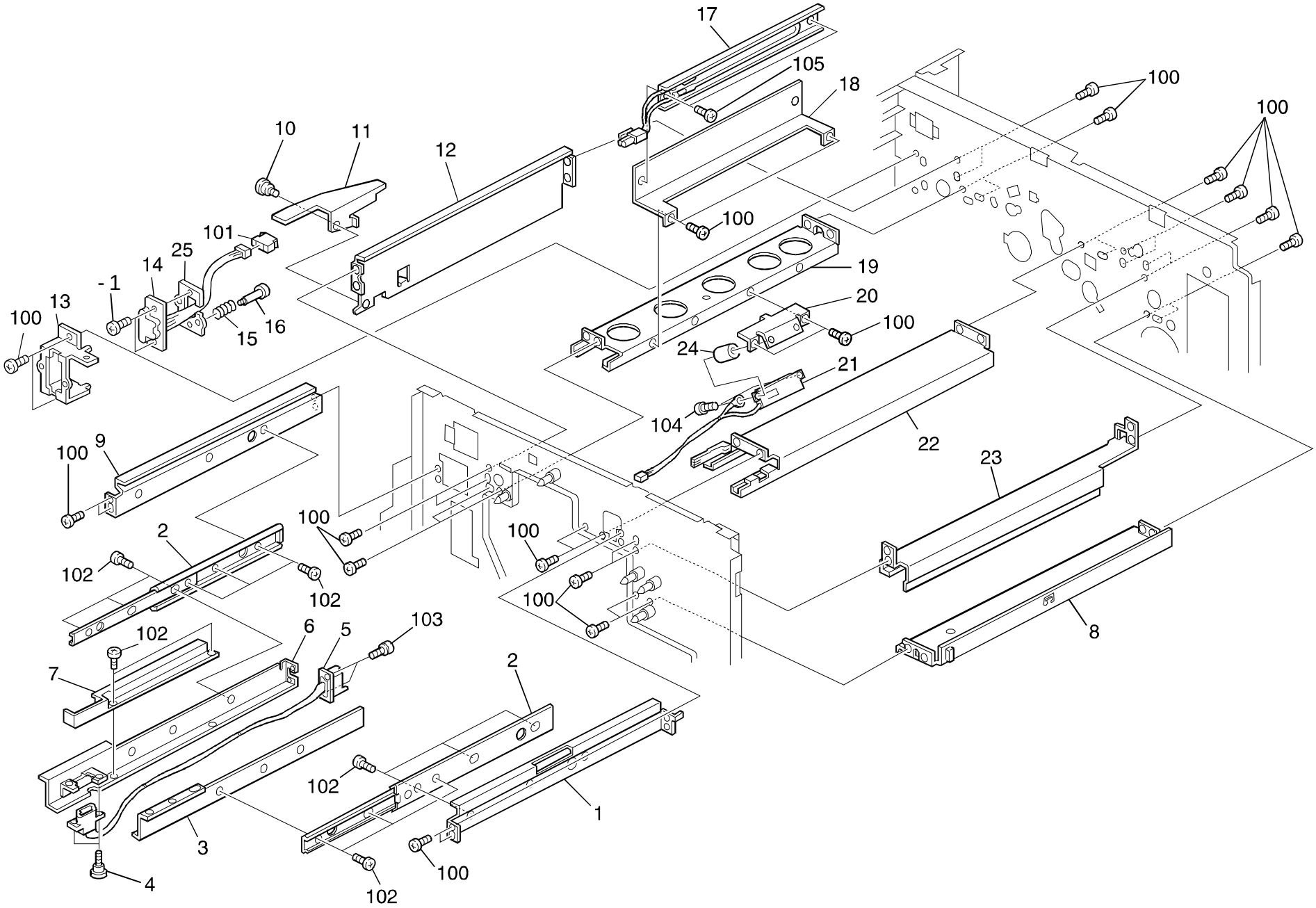


47. Frame Section 2 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	**AA01 2069**	**Development Exhaust Fan Filter**	**2**
2	AA15 1779	Seal - 99x105.5	2
3	A109 3302	Development Exhaust Fan Bracket	1
4	AX64 0043	Optics Cooling Fan Motor - DC24V 2.88W	2
5	A109 5319	Separation Corona Cable	1
6	A109 3303	Shielding Plate - Development Duct	1
7	A109 3301	Development Exhaust Fan Duct	1
8	AA15 1827	Seal - 12x12x97	2
9	AA01 2070	Development Dust Lower Filter	1
10	AA15 1828	Seal - 12x12x304	2
11	A109 1111	Rear Left Frame	1
12	A109 1113	Frame Bracket - Rear Upper Left	1
13	A109 1089	Left Upper Tray	1
14	A109 1096	Left Middle Stay	1
15	A109 3330	Lower Left Development Cover	1
16	A172 3325	Development Unit Base	1
17	A109 4270	Fusing Unit Rail	1
18	A172 3881	Transport Sensor Bracket	1
19	AW01 0069	Photo Sensor Ass y	1
20	A109 5313	Relay Harness - Transport Sensor	1
21	AG05 1099	Fusing Release Lever	1
22	A109 1105	Front Lower Left Frame	1
23	A109 4273	Fusing Unit Stopper	1
24	A109 4271	Heat Insulating Plate	1
25	AA06 0244	Spring	1
26	AA14 3733	Stepped Screw M4	1

Index No.	Part No.	Description	Q ty Per Assembly
100	0354 0060B	Screw - M4X6	
101	0414 0102B	Tapping Screw M4x10	
102	1105 0199	Clamp	
103	1105 0310	Wire Clamp	
104	0314 0300B	Philips Pan Head Screw - M4x30	
105	0434 0080B	Philips Tapping Screw - M4x8	
106	1105 0200	Clamp	
107	0314 0060B	Philips Pan Head Screw - M4x6	
108	1106 0193	Bushing - 7.9mm	
109	0314 0050B	Philips Pan Head Screw - M4x5	
110	0313 0100B	Philips Pan Head Screw - M3x10	

48. Frame Section 3 (A172/A199)

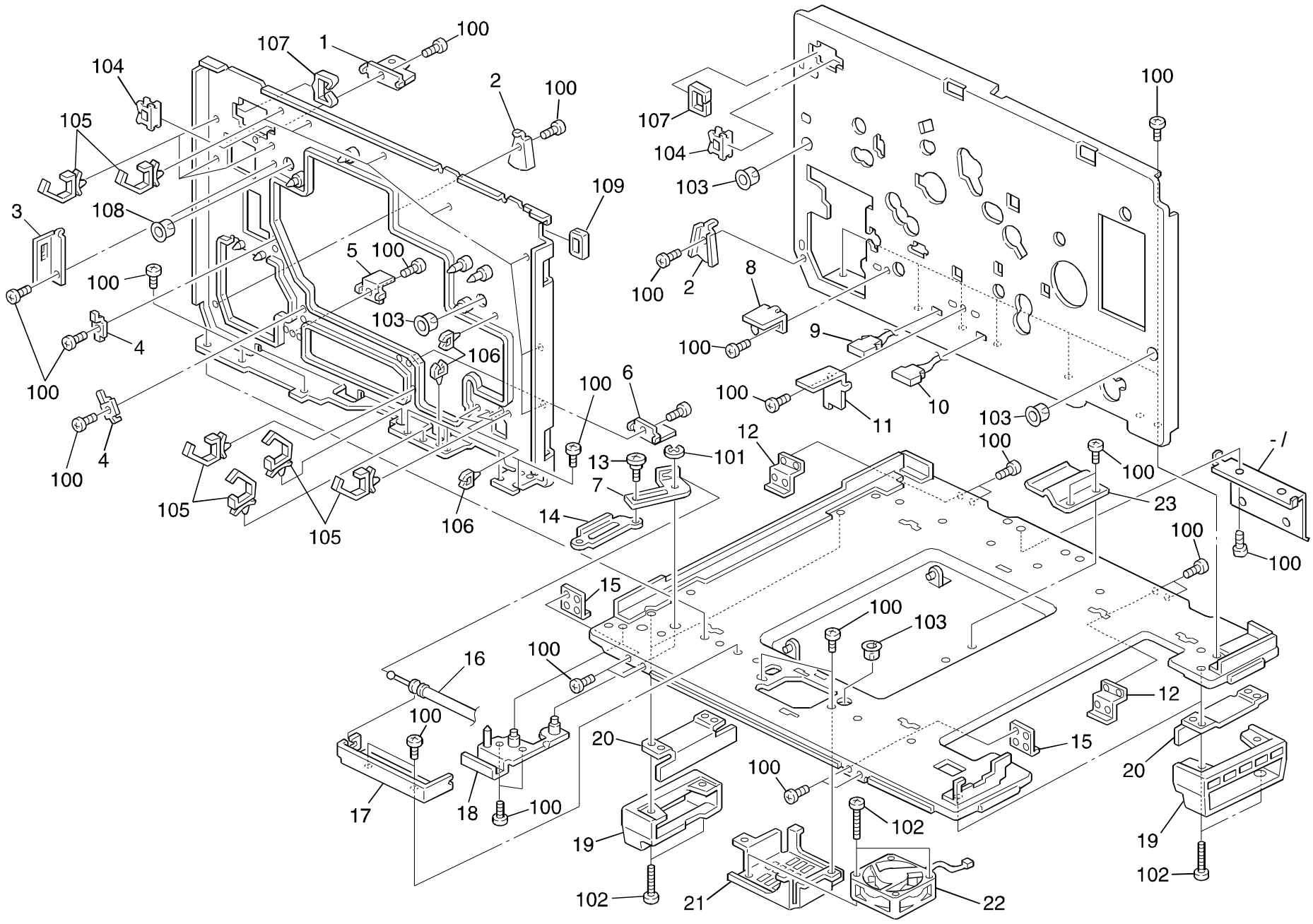


48. Frame Section 3 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A109 3441	Right Slide Rail Stay	1
2	AA07 0022	Slide Rail	2
3	A109 3446	Right Stay - Toner Tank	1
4	AA14 3301	Stepped Screw - M3x4	2
5	A172 5307	Hopper Relay Harness - 1	1
6	A172 3455	Left Stay - Toner Hopper	1
7	A109 3459	Connector Cover - Hopper Harness	1
8	A109 6403	Solenoid Bracket	1
9	A109 3440	Left Slide Rail Stay	1
10	AA14 3358	Stepped Screw - M4x3	1
11	A109 3332	Development Unit Stopper - B.C	1
12	A109 1094	Left Side Stay	1
13	A172 3438	Connector Bracket	1
14	A172 5308	Hopper Relay Harness - 2	1
15	AA06 3068	Spring Connector	1
16	5446 5832	Connector Guide Pin	1
17	AX40 0057	Heater - 115V 9W	1
17	AX40 0058	Heater - 230V 9W	1
18	A109 2421	Drum Heater Bracket	1
19	A109 3322	Development Unit Rail	1
20	A109 2426	Drum Potential Sensor Bracket	1
21	AW33 0004	Drum Potential Sensor	1
22	A109 6131	Transfer Unit Rail	1
23	A109 6401	Lubricant Brush Roller Stay	1
24	AA13 2178	Spacer - Drum Potential Sensor	2
25	A172 3439	Connector Holder	1
26	AA14 3312	Stepped Screw - M3x10	1

Index No.	Part No.	Description	Q ty Per Assembly
100	0434 0080B	Philips Tapping Screw - M4x8	
101	1102 6265	Connector - Red 8p	
102	0314 0050B	Philips Pan Head Screw - M4x5	
103	0952 3008B	Screw - M3x8	
104	0313 0060B	Philips Pan Head Screw - M3x6	
105	0957 4008B	Philips Screw W/F Washer - M4x8	

49. Frame Section 4 (A172/A199)



49. Frame Section 4 (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A109 5756	Front Holder - AC Drive	1
2	A109 4274	Copy Tray Holder	2
3	A109 2430	Connector Bracket	1
4	A030 3403	Bracket	2
5	A109 3872	Front Left Positioning Plate	1
6	A109 3871	Front Right Positioning Plate	1
7	A109 4771	Gear Release Arm	1
8	A109 3874	Rear Left Positioning Plate	1
9	A109 5310	Relay Harness - Transport Fan	1
10	A109 5313	Relay Harness - Transport Sensor	1
11	A109 3873	Rear Right Positioning Plate	1
12	A109 1032	Rear Fixing Plate	2
13	A109 4775	Stepped Screw - M5	1
14	A109 4772	Arm Bracket - Gear Release	1
15	A109 1031	Front Fixing Plate	2
16	A109 4774	Gear Release Wire	1
17	A109 4773	Wire Holder - Gear Release	1
18	A109 4910	Lower Left Hinge	1
19	A096 1094	Grip Base	4
20	A109 1057	Grip Plate	4
21	A109 1123	Inner Cooling Fan Bracket	1
22	AX64 0041	Cooling Fan Motor - DC24 7.64W	1
23	A172 3870	Spring Plate - Transport	1
24	A172 1151	Grounding Plate	1

Index No.	Part No.	Description	Q ty Per Assembly
100	0434 0080B	Philips Tapping Screw - M4x8	
101	0720 0040E	Retaining Ring - M4	
102	0314 0300B	Philips Pan Head Screw - M4x30	
103	1106 0193	Bushing - 7.9mm	
104	1105 0113	Edge - P108	
105	1105 0278	Harness Clamp	
106	1105 0199	Clamp	
107	1105 0352	Clamp	
108	1106 0430	Bushing - 13mm	
109	1105 0334	Edge - 17	

50. Main Control Board (A172/A199)

CAPACITOR

SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.
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C502	180	C512	179	C522	187	----	---	----	---	C552	187	----	---
C503	179	C513	181	C523	187	C533	178	C543	186	C553	187	C563	187
C504	180	C514	188	C524	187	C534	188	C544	188	C554	188	C564	187
C505	185	C515	187	C525	187	C535	187	C545	188	C555	187	C565	188
C506	185	C516	187	C526	187	C536	186	C546	187	C556	187	C566	187
C507	185	C517	187	C527	187	C537	188	C547	187	C557	187	C567	187
C508	185	C518	187	C528	187	C538	187	C548	188	C558	188	C568	187
C509	185	C519	187	C529	185	C539	188	C549	187	C559	187	C569	187
C510	185	C520	187	C530	187	C540	183	C550	188	C560	187	C570	188

CAPACITOR

SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.
C571	188	C581	188	C591	187	C601	187	C611	182	C621	188	C631	187
C572	187	C582	187	C592	187	C602	187	C612	187	C622	188	C632	187
C573	188	C583	187	C593	187	C603	188	C613	187	C623	188	C633	187
C574	188	C584	187	C594	187	C604	188	C614	187	C624	187	C634	187
C575	188	C585	187	C595	187	C605	188	C615	187	C625	187	C635	187
C576	187	C586	187	C596	187	C606	188	C616	187	C626	188	C636	187
C577	187	C587	187	C597	187	C607	188	C617	185	C627	188	C637	187
C578	187	C588	188	C598	187	C608	187	C618	187	----	---	C638	187
C579	187	C589	188	C599	187	C609	187	C619	185	C629	187	C639	188
C580	188	C590	187	C600	187	C610	182	C620	188	C630	187	C640	187

50. Main Control Board (A172/A199)

CAPACITOR

SYMBOL NO.	INDEX NO.
C641	187
C642	188
C643	187
C644	184
C645	184
C646	187
C647	188
C648	188
C649	188
C650	188

SYMBOL NO.	INDEX NO.
C651	185
C652	187
C653	187
C654	188
C700	187
C701	188

CONNECTOR

SYMBOL NO.	INDEX NO.
CN501	105
CN502	111
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CN504	115
CN505	116
CN506	112
CN507	113
CN508	114
CN509	111
CN510	104

SYMBOL NO.	INDEX NO.
CN511	106
CN512	107
CN513	108
CN514	109
CN515	106
CN516	104
CN517	118
CN518	117

DIODE

SYMBOL NO.	INDEX NO.
D502	124
D504	124
D505	124
D506	124
D509	124

DPS

SYMBOL NO.	INDEX NO.
DPS501	121

FIB

SYMBOL NO.	INDEX NO.
FIB505	158
FIB506	158
FIB507	158
FIB508	158
FIB509	158
FIB510	158
FIB511	158
FIB512	158
FIB513	158
FIB514	158

FIB

SYMBOL NO.	INDEX NO.
FIB515	158
FIB516	158
FIB517	158

IC

SYMBOL NO.	INDEX NO.
IC501	153
IC502	151
IC503	151
IC504	148
IC505	152
IC506	135
IC507	141
IC508	190
IC509	4
[SOCKET]	119

SYMBOL NO.	INDEX NO.
IC511	147
IC512	135
IC513	134
IC514	131
IC515	128
IC516	140
IC517	139
IC518	141
IC519	127
IC520	189

SYMBOL NO.	INDEX NO.
IC521	135
IC522	5
[SOCKET]	120
IC523	6
[SOCKET]	110
IC524	145
IC525	145
IC526	142
IC527	142
IC528	131

SYMBOL NO.	INDEX NO.
IC529	127
IC530	132
IC531	142
IC532	128
IC533	128
IC534	128
IC535	138
IC536	149
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IC538	149

SYMBOL NO.	INDEX NO.
IC539	145
IC540	142
IC541	135
IC542	135
IC543	143
IC544	138
IC545	136
IC546	136
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IC548	150

SYMBOL NO.	INDEX NO.
IC549	137
IC550	131
IC551	127
IC552	128
IC553	138
IC554	129
IC555	133
IC556	130
IC557	130
IC558	144

50. Main Control Board (A172/A199)

IC

SYMBOL NO.	INDEX NO.
IC559	146
IC560	144

LED

SYMBOL NO.	INDEX NO.
LED502	126

NF

SYMBOL NO.	INDEX NO.
NF501	157

OSC

SYMBOL NO.	INDEX NO.
OSC501	156
OSC502	154
OSC503	155

Q

SYMBOL NO.	INDEX NO.
Q501	122
Q502	122
Q503	122
Q504	122
Q505	122
Q506	122
Q507	122
Q508	122
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Q510	123

RESISTOR

SYMBOL NO.	INDEX NO.
R501	162
R502	176
R503	175
R504	161
R505	171
R506	159
R507	162
R508	162
R509	171
R510	171

SYMBOL NO.	INDEX NO.
R511	162
R512	162
R513	162
R514	162
R515	162
R516	162
R517	173
R518	173
R519	172
R520	173

ESISTOR

SYMBOL NO.	INDEX NO.
R521	173
R522	173
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R525	173
R526	173
R527	170
R528	162
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R530	162

SYMBOL NO.	INDEX NO.
R531	173
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R533	173
R534	170
R535	170
R536	170
R537	162
R538	162
R539	173
R540	170

SYMBOL NO.	INDEX NO.
R541	162
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R543	162
R544	162
R545	173
R546	173
R547	173
R548	173
R549	173
R550	173

SYMBOL NO.	INDEX NO.
R551	173
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R553	162
R554	162
R555	162
R556	162
R557	169
R558	173
R559	170
R560	162

SYMBOL NO.	INDEX NO.
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R562	173
R563	173
R564	173
R565	162
R566	162
R567	165
R568	170
R569	173
R570	175

SYMBOL NO.	INDEX NO.
R571	161
R572	176
R573	171
R574	173
R575	173
R576	173
R577	173
R578	173
R579	173
R580	175

SYMBOL NO.	INDEX NO.
R581	176
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R583	169
R584	173
R585	173
R586	173
R587	173
R588	173
R589	170
R590	170

50. Main Control Board (A172/A199)

RESISTOR

SYMBOL NO.	INDEX NO.
R591	170
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R593	170
R594	170
R595	170
R596	170
R597	162
R598	162
R599	173
R600	170

SYMBOL NO.	INDEX NO.
R601	170
R602	170
R603	170
R604	164
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R607	171
R608	171
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R610	169

SYMBOL NO.	INDEX NO.
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R612	160
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R615	160
R616	160
R617	160
R618	160
R619	160
R620	165

SYMBOL NO.	INDEX NO.
R621	169
R622	165
R623	165
R624	173
R625	173
R626	173
R627	170
R628	170
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SYMBOL NO.	INDEX NO.
R631	161
R632	161
R633	161
R634	169
R635	165
R636	169
R637	165
R638	162
R639	162
R640	162

SYMBOL NO.	INDEX NO.
R641	162
R642	162
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R644	170
R645	170
R646	173
R647	173
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R650	169

SYMBOL NO.	INDEX NO.
R651	165
R652	162
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R654	162
R655	162
R656	173
R657	173
R658	173
R659	173
R660	173

RESISTOR

SYMBOL NO.	INDEX NO.
R661	168
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R663	173
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R665	162
R666	173
R667	173
R668	173
R669	168
R670	162

SYMBOL NO.	INDEX NO.
R671	161
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R674	161
R675	161
R676	162
R677	161
R678	177
R679	161
R680	161

SYMBOL NO.	INDEX NO.
R681	161
R682	166
R683	171
R684	161
R685	161
R686	163
R687	163
R688	162
R689	167
R690	173

SYMBOL NO.	INDEX NO.
R691	173
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R696	174
R697	161
R698	161
R699	162
R700	174

SYMBOL NO.	INDEX NO.
R701	162
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R703	162
R704	162
R705	162
R706	162
R707	161
R708	173
R709	173
R710	170

SYMBOL NO.	INDEX NO.
R711	170
R712	161
R713	174
R714	173
R715	173
R800	173
R801	165
R802	173

SW

SYMBOL NO.	INDEX NO.
SW501	102
[SOCKET]	103

50. Main Control Board (A172/A199)

TP

SYMBOL NO.	INDEX NO.
TP501	101
TP502	101
TP503	101
TP504	101
TP505	101
TP507	101
TP508	101
TP509	101
TP510	101
TP511	101

SYMBOL NO.	INDEX NO.
TP512	101
TP513	101
TP514	101
TP515	101
TP516	101

ZD

SYMBOL NO.	INDEX NO.
ZD501	125

50. Main Control Board (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
*	A172 5108	Main Control Board	1
1	A096 5129	IC - M37409M2-155FP	1
2	A172 5114	IC - Main Control 10	1
3	A172 5115	IC - Main Control 20	1
4	A172 5123	ROM Board - Main	1
5	A172 5129	IC - Main Control 30	1
6	A172 5121	NV RAM Board	1

Index No.	Part No.	Description	Q ty Per Assembly
101	1101 0328	Connector Pin Contact	
102	1101 0360	Connector - 3p	
103	1101 0395	IC Socket - 252	
104	1102 5003	Fiber Connector - DC1002 - 2p	
105	1102 5328	Connector - 12p	
106	1102 5340	Fiber Connector - 2p	
107	1102 5341	Fiber Connector	
108	1102 5342	Connector - 2p	
109	1102 5343	Fiber Connector - DC1002-5	
110	1102 6134	IC Socket	
111	1102 6299	Connector - 6p	
112	1102 6303	Connector - 10p	
113	1102 6395	Connector - 1p	
114	1102 6396	Connector - 1p	
115	1102 6402	Connector - 2p	
116	1102 6403	Connector - 30p	
117	1102 6408	Connector - 30p	
118	1103 3020	Connector - 20p	
119	1104 0451	IC Socket - 32P	
120	1104 0589	Dip Socket : 32p	
121	1204 1542	Dip Switch	
122	1400 0528	Transistor - DTB113EK	
123	1401 0296	Transistor - 2SA1162Y	
124	1402 0476	Diode - 1SS184	
125	1402 1152	Diode - RD7.5P	
126	1403 0558	LED - SEL2110RTP3	
127	1407 1309	IC - LS04	
128	1407 1311	IC - LS32	
129	1407 1596	TTLIC - SN74LS14NS	
130	1407 2052	TTLIC - SN74LS74ANS	
131	1407 2081	TTLIC - SN74LS08NS	
132	1407 2135	TTLIC - 74F74SJ	
133	1407 2137	IC -74F138SJ : TTL	
134	1407 2138	TTLIC - 74F139SJ	
135	1407 2187	TTLIC - SN74LS07NS	

Index No.	Part No.	Description	Q ty Per Assembly
136	1407 2231	IC - TD62308AF	
137	1407 2253	TTL - SN74LS393NS	
138	1407 2344	IC - TD62382F	
139	1407 2463	TTL - IC - SN74ALS08NS	
140	1407 2464	TTL - IC - SN74ALS74ANS	
141	1407 2588	TTLIC - SN74ALS04BNS	
142	1407 2817	TTL - SN74ALS32NS	
143	1407 3692	IC - RF5C86	
144	1407 3753	IC - TC4W53F	
145	1407 3852	IC - MB89371AH	
146	1407 4137	IC - MM1035XF	
147	1407 4143	MPU - MC68331CFC16	
148	1407 4144	MPU - H81532 - HB6435328RA00M	
149	1407 4146	LSI - MB89255AHPFS	
150	1407 4183	IC - UPD71051GU-10	
151	1408 0585	IC - AD7528JR	
152	1408 0595	IC - NJM2904M	
153	1408 0716	IC - NJM084M	
154	1503 0194	Crystal Oscillator - 32.768 Khz	
155	1503 0261	Oscillator - 9.8304MHz	
156	1503 0307	Oscillator - 20MHz	
157	1602 7029	Noise Filter - 22000pf	
158	1607 0477	Coil - BLM21A121SPB	
159	1630 1101	Resistor - 100 P 1/4W 5%	
160	1630 1151	Resistor - 150 P 5% 1/4W	
161	1630 2102	Resistor - 1K P 1/8W 5%	
162	1630 2103	Resistor - 10K P 1/8W	
163	1630 2104	Resistor - 100K P 1/8W 5%	
164	1630 2105	Resistor - 1M P 1/8W	
165	1630 2121	Resistor - 120 P 5% 1/8W	
166	1630 2123	Resistor - 12KP 1/8W 5%	
167	1630 2206	Resistor - 20M P 1/8W 5%	
168	1630 2220	Resistor - 22P 1/8W 5%	
169	1630 2222	Resistor - 2.2K P 1/8W	

Index No.	Part No.	Description	Q ty Per Assembly
170	1630 2223	Resistor - 22K P 1/8W 5%	
171	1630 2330	Resistor - 33P 1/8W 5%	
172	1630 2334	Resistor - 330KP	
173	1630 2472	Resistor - 4.7K P 1/8W 5%	
174	1630 2473	Resistor - 47KP 1/8W 5%	
175	1630 2511	Resistor - 510P 1/8W 5%	
176	1630 2821	Resistor - 820 P 1/8W 5%	
177	1632 5231	Resistor - 5.23K P 1%	
178	1640 5100	Capacitor - 10ηF 20% 50V	
179	1640 5101	Capacitor - 100ηF 20% 50V	
180	1640 5470	Capacitor - 47ηF 20% 50V	
181	1640 5478	Capacitor - 0.47ηF 20% 50V	
182	1660 1100	Capacitor - 10PF 50V	
183	1660 3101	Capacitor - 100PF 50V	
184	1660 3150	Capacitor - 15PF 50V	
185	1660 3471	Capacitor - 470PF 50V	
186	1660 5102	Capacitor - 1000PF 10% 50V	
187	1660 7103	Capacitor - 10000PF 50V	
188	1660 7104	Capacitor - 100000PF 50V	
189	1902 0006	IC - SRAM 256KX8 70NS G1	
190	1902 0021	IC - SRAM - 1M - X8 - 100NS/G4	

51. IPU Board (A172/A199)

AR

SYMBOL NO.	INDEX NO.
AR301	155
AR302	155
AR303	155
AR304	156
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AR306	156
AR307	156
AR308	156
AR309	156
AR310	156

SYMBOL NO.	INDEX NO.
AR311	156
AR312	156
AR313	156
AR314	156
AR315	156
AR316	155
AR317	155
AR318	155
AR319	154
AR320	154

SYMBOL NO.	INDEX NO.
AR321	154
AR322	154
AR323	154
AR324	154
AR325	154
AR326	154
AR327	154
AR328	154
AR329	154
AR330	154

SYMBOL NO.	INDEX NO.
AR331	155

CAPACITOR

SYMBOL NO.	INDEX NO.
C301	188
C302	188
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C304	189
C305	188
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C309	188
-----	---

SYMBOL NO.	INDEX NO.
----	---
C312	188
C313	188
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C317	193
C318	193
C319	194
C320	194

SYMBOL NO.	INDEX NO.
C321	194
C322	194
C323	194
C324	194
C325	194
C326	194
C327	194
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CAPACITOR

SYMBOL NO.	INDEX NO.
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-----	---
C333	192
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C335	193
C336	193
C337	193
C338	193
C339	194
C340	194

SYMBOL NO.	INDEX NO.
C341	194
C342	194
C343	194
C344	194
C345	194
C346	194
C347	194
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C350	193

SYMBOL NO.	INDEX NO.
C351	192
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C355	193
C356	193
C357	193
C358	193
C359	193
C360	194

SYMBOL NO.	INDEX NO.
C361	194
C362	194
C363	194
C364	194
C365	194
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C367	193
C368	193
C369	192
-----	---

SYMBOL NO.	INDEX NO.
C371	194
C372	194
C373	194
C374	194
C375	194
C376	194
C377	194
C378	194
C379	193
C380	193

SYMBOL NO.	INDEX NO.
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C383	194
C384	194
C385	194
C386	194
C387	194
C388	194
C389	194
C390	194

SYMBOL NO.	INDEX NO.
C391	194
C392	194
C393	194
C394	194
C395	194
C396	194
C397	194
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C399	193
C400	193

51. IPU Board (A172/A199)

CAPACITOR

SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.
C401	194	----	---	----	---	----	---	----	---	C451	194	C461	192
C402	194	C412	192	----	---	C432	162	----	---	C452	194	C462	192
C403	194	----	---	----	---	C433	194	----	---	C453	194	C463	193
C404	194	----	---	C424	194	C434	192	----	---	C454	194	C464	194
C405	194	C415	192	C425	194	C435	194	----	---	C455	194	C465	193
C406	194	C416	193	C426	194	C436	194	C446	194	C456	194	C466	193
C407	194	C417	192	C427	194	C437	194	C447	194	C457	194	----	---
C408	194	C418	193	C428	194	C438	193	C448	191	C458	192	----	---
----	---	C419	194	C429	194	----	---	C449	161	C459	193	----	---
----	---	----	---	C430	194	----	---	C450	194	C460	192	C470	192

CAPACITOR

SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.
C471	192	C481	193	----	---	C501	194	C511	194	----	---	C531	194
----	---	C482	162	----	---	C502	194	C512	194	C522	194	C532	193
C473	194	----	---	C493	194	C503	194	----	---	C523	194	C533	193
C474	194	C484	193	C494	194	----	---	----	---	C524	193	C534	193
C475	194	----	---	C495	193	----	---	C515	193	C525	193	C535	194
C476	194	C486	193	C496	194	----	---	C516	193	C526	194	C536	193
C477	193	----	---	C497	193	----	---	C517	193	C527	194	C537	193
C478	193	----	---	C498	193	C508	194	C518	193	C528	194	C538	193
C479	193	C489	194	C499	194	C509	194	C519	194	C529	194	C539	193
C480	194	C490	194	C500	194	C510	194	----	---	C530	194	C540	193

51. IPU Board (A172/A199)

CAPACITOR

SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.
C541	193	C551	194	C561	190	C571	190	C581	190	C591	194	C601	161
C542	194	C552	193	C562	190	C572	190	C582	190	C592	194	C602	161
C543	194	C553	193	C563	190	C573	190	C583	190	C593	161	C603	161
C544	194	C554	190	C564	190	C574	190	C584	190	C594	161	C604	161
C545	193	C555	190	C565	190	C575	190	C585	190	C595	161	C605	161
C546	193	C556	190	C566	190	C576	190	C586	194	C596	190	C606	161
C547	193	C557	190	C567	190	C577	190	C587	190	C597	190	C607	161
C548	194	C558	190	C568	190	C578	190	C588	194	C598	194	C608	193
C549	194	C559	190	C569	190	C579	190	C589	190	C599	161	C609	190
C550	194	C560	190	C570	190	C580	190	C590	194	C600	161	C610	190

CAPACITOR

SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.
C611	194	C621	193
C612	194	C622	193
C613	190	C623	193
----	---	C624	193
C615	193	C625	193
C616	193	C626	193
C617	193	C627	193
C618	193	C628	193
C619	193	C629	194
C620	193	C630	194

CONNECTOR

SYMBOL NO.	INDEX NO.
CN301	102
CN302	106
CN303	101
CN304	105
CN305	104
CN306	103
CN308	107
CN309	104
CN310	108
CN311	108

FIL

SYMBOL NO.	INDEX NO.
FIL301	157
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FIL303	157
FIL304	160
FIL305	159
FIL306	157
FIL307	163
FIL308	163
FIL309	163
FIL310	158

IC

SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.
IC301	2	IC311	134	IC321	136
IC302	2	IC312	151	IC322	9
IC303	2	IC313	134	IC323	1
IC304	196	IC314	135	IC324	134
IC305	12	IC315	134	IC325	134
[SOCKET]	109				
IC306	196	IC316	134	IC326	133
IC307	2	IC317	134	IC327	134
IC308	4	-----	---	IC328	7
IC309	11	IC319	1	IC329	134
IC310	134	IC320	134	IC330	133

IC

SYMBOL NO.	INDEX NO.
IC331	134
IC332	134
IC333	135
IC334	134
IC335	8
IC336	6
IC337	146
IC338	6
IC339	146
IC340	6

SYMBOL NO.	INDEX NO.
IC341	146
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IC343	135
IC344	5
IC345	135
IC346	5
IC347	135
IC348	5
IC349	134
IC350	134

SYMBOL NO.	INDEX NO.
IC351	135
IC352	135
IC353	3
IC354	135
IC355	10
IC356	135
IC357	134
IC358	135
IC359	134
IC360	134

SYMBOL NO.	INDEX NO.
IC361	134
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IC363	134
IC364	135
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IC368	129
IC369	125
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SYMBOL NO.	INDEX NO.
IC371	132
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IC373	116
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IC375	141
IC376	127
IC377	141
IC378	125
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SYMBOL NO.	INDEX NO.
-----	---
IC382	116
IC383	141
IC384	137
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IC386	139
IC387	115
IC388	140
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SYMBOL NO.	INDEX NO.
IC391	124
IC392	137
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IC394	138
-----	---
IC396	131
IC397	119
-----	---
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IC400	119

IC

SYMBOL NO.	INDEX NO.
-----	---
IC402	119
IC403	142
IC404	141
IC405	142
IC406	120
IC407	150
IC408	123
IC409	142
IC410	123

SYMBOL NO.	INDEX NO.
IC411	122
IC412	122
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IC414	117
IC415	118
IC416	149
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SYMBOL NO.	INDEX NO.
IC421	120
IC422	120
IC423	137
IC424	137
IC425	137
IC426	116
IC427	116
IC428	116
IC429	13
IC430	134

SYMBOL NO.	INDEX NO.
IC431	134
IC432	144
IC433	115
-----	---
IC435	142
IC436	131
IC437	131
IC438	114
IC439	114
IC440	114

SYMBOL NO.	INDEX NO.
IC441	137
IC442	114
IC443	137
IC444	114
IC445	137
IC446	114
IC447	114
IC448	114
IC449	116
IC450	114

SYMBOL NO.	INDEX NO.
IC451	114
IC452	195
IC453	143
IC454	130
IC455	143
IC456	130
IC457	114
IC458	126
IC459	128
IC460	196

SYMBOL NO.	INDEX NO.
IC461	196
IC462	138
IC463	124
IC464	145
IC465	121
IC466	121
-----	---
IC468	132
IC469	126
-----	---

51. IPU Board (A172/A199)

JP

SYMBOL NO.	INDEX NO.
JP301	181
JP302	181
JP303	181
JP304	181
JP305	181
JP306	181
JP307	181
JP308	181
JP309	181
JP310	181

L

SYMBOL NO.	INDEX NO.
L302	164
L303	164

LED

SYMBOL NO.	INDEX NO.
LED308	113
LED309	113

Q

SYMBOL NO.	INDEX NO.
Q301	111

REG

SYMBOL NO.	INDEX NO.
REG301	147
REG303	148

RESISTOR

SYMBOL NO.	INDEX NO.
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----	---
R303	180
R304	180
R305	186
R306	186
R307	186
R308	173
R309	173
R310	173

SYMBOL NO.	INDEX NO.
R311	176
R312	180
R313	180
R314	180
R315	180
R316	176
R317	186
R318	186
R319	186
R320	186

RESISTOR

SYMBOL NO.	INDEX NO.
R321	186
R322	177
R323	170
R324	168
R325	176
R326	187
R327	176
R328	173
R329	173
R330	176

SYMBOL NO.	INDEX NO.
R331	177
R332	173
R333	173
R334	173
R335	173
R336	173
R337	176
R338	176
R339	180
R340	180

SYMBOL NO.	INDEX NO.
R341	168
----	---
R343	168
R344	175
R345	173
R346	176
R347	176
R348	176
R349	176
R350	176

SYMBOL NO.	INDEX NO.
R351	168
R352	168
R353	176
R354	168
R358	176
R359	176
R362	175
R365	167
R366	169
R367	176

SYMBOL NO.	INDEX NO.
R376	180
R378	168
R379	168
R380	186
R381	186
R382	186
R383	186
R384	179
R385	179
R386	173

SYMBOL NO.	INDEX NO.
R391	180
R394	180
R400	176
R404	176
R405	184
R406	185
R407	171
R408	168
R409	179
R410	179

SYMBOL NO.	INDEX NO.
R411	165
R412	176
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R414	176
----	---
R416	173
R417	173
R418	167
R419	167
R420	167

51. IPU Board (A172/A199)

RESISTOR

SYMBOL NO.	INDEX NO.
R424	180
R425	180
R426	180
R427	180
R428	179
R429	179
R430	172
R431	180
R432	180
R433	183

SYMBOL NO.	INDEX NO.
R434	182
R435	182
R445	168
R446	168
R447	168
R448	168
R449	168
R450	168
R451	166
R452	166

SYMBOL NO.	INDEX NO.
R453	166
R454	166
R455	166
R456	166
R457	166
R458	166
R459	176
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SYMBOL NO.	INDEX NO.
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R486	173
R487	178
R488	178
R489	174
R490	173
R491	176
R492	168

SYMBOL NO.	INDEX NO.
R493	176
R494	176
R495	168
----	---
R497	180
R498	168
R499	168
R500	168
R501	168
R502	167

SYMBOL NO.	INDEX NO.
R503	167
R504	176
R505	176
R506	176
R507	176
R508	176
R509	176
R510	176
R511	176
R512	176

SYMBOL NO.	INDEX NO.
R513	176
R514	176
R515	176
R516	176
R517	176
R518	176
R519	176
R520	176
R521	176
R522	176

RESISTOR

SYMBOL NO.	INDEX NO.
R523	176
R524	176
R525	176
R526	168
R527	176
R528	176
R529	176
R530	176
R531	176

SW

SYMBOL NO.	INDEX NO.
SW301	110

XTL

SYMBOL NO.	INDEX NO.
XTL301	152
XTL302	153

ZD

SYMBOL NO.	INDEX NO.
ZD301	112

51. IPU Board (A172/A199)

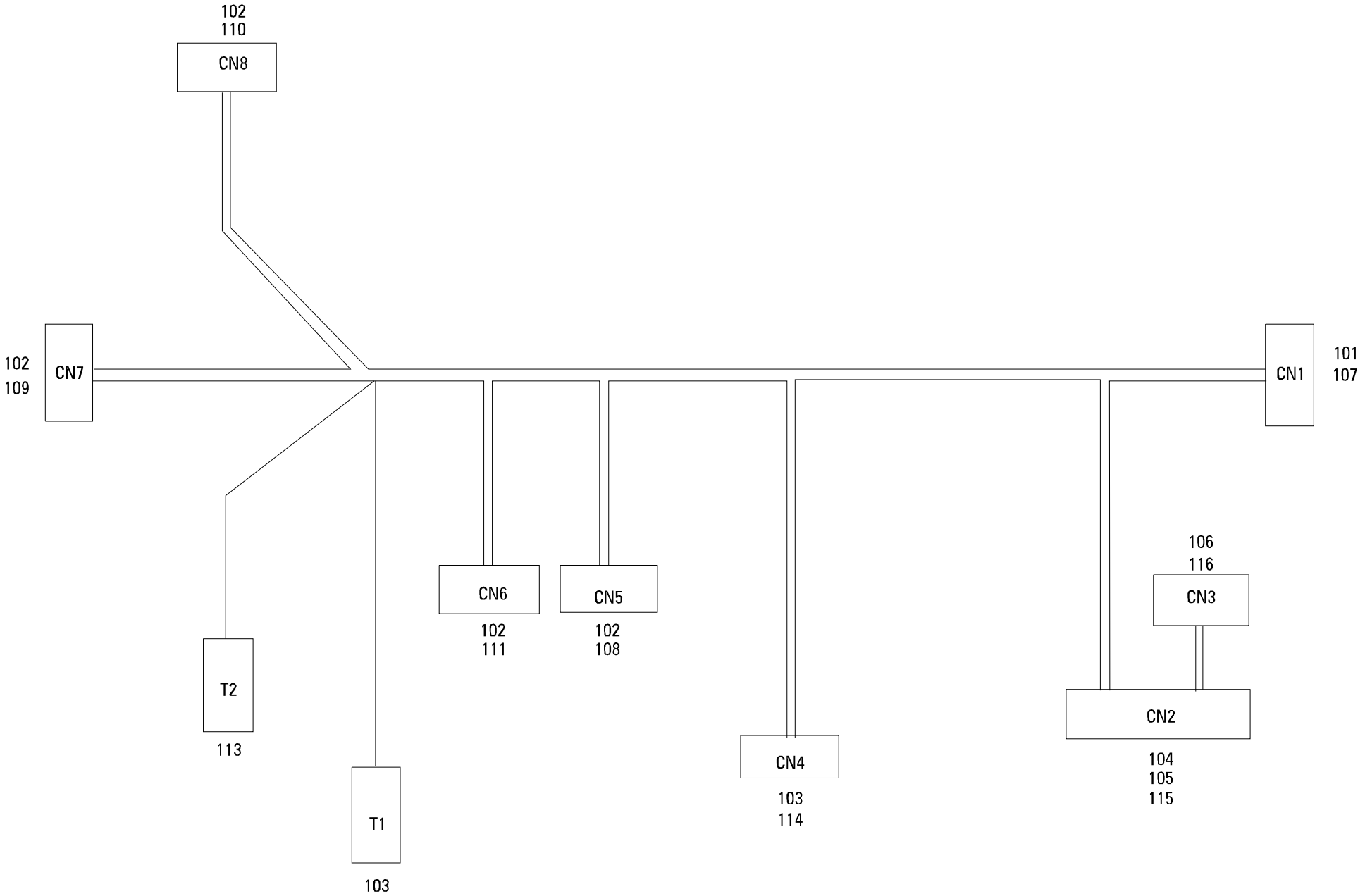
Index No.	Part No.	Description	Q ty Per Assembly
*	A172 5242	IPU Board	
1	A049 5102	IC - TC23SC080AF-501	
2	A109 5203	IC - 8K8BIT35NS	
3	A109 5222	IC - RF5C221	
4	A109 5227	IC - MB87872	
5	A134 5209	LSI - MSM518222-30JS-1	
6	A172 5220	IC - UPD93143GM-JEU	
7	A172 5221	IC - RF5C284	
8	A172 5224	IC - UPD65646GJ-169-3EN	
9	A172 5225	IC - RF5C285	
10	A172 5226	IC - UPD39181GD-LML	
11	A172 5229	IC - HG62G035R35F	
12	A172 5207	IC - UVEPROM 4M X16 120NS	
13	A172 5231	IC - DRAM 2M 8BIT	

Index No.	Part No.	Description	Q ty Per Assembly
101	1102 5003	Fiber Connector - DC1002 - 2p	
102	1102 5310	Connector - 5p	
103	1102 6296	Connector - 3p	
104	1102 6335	Connector - 4p	
105	1102 6398	Connector - 2p	
106	1102 6567	Connector - PHEC40P-R111	
107	1102 6570	Connector - PHEC60P-R111	
108	1102 7021	Connector - IMSA-9224B-40Z10-GF	
109	1104 0376	IC Socket - 40p - DICF-40CS-E	
110	1204 2156	Dip Switch - 51D-0501	
111	1401 0992	Transistor - 2SB1335	
112	1402 1172	Zener Diode - HZM6.8B	
113	1403 0313	Diode - TLR102A	
114	1407 1605	TTLIC - SN74LS157NS	
115	1407 1741	TTL - SN74LS32NS	
116	1407 1792	IC - SN74LS374NS	
117	1407 2127	TTL - IC74F00SJ	
118	1407 2128	TTL - IC74F02SJ	
119	1407 2137	IC -74F138SJ : TTL	
120	1407 2187	TTLIC - SN74LS07NS	
121	1407 2247	TTL - SN74LS164NS	
122	1407 2249	TTL - SN74LS174NS	
123	1407 2378	TTL - SN74ALS245ANS	
124	1407 2409	IC - SN74LS04M	
125	1407 2464	TTL - IC - SN74ALS74ANS	
126	1407 2588	TTLIC - SN74ALS04BNS	
127	1407 2817	TTL - SN74ALS32NS	
128	1407 3008	TTL - SN74ALS244CNS	
129	1407 3025	IC - SN74ALS02NS	
130	1407 3238	IC - SN74AS08NS	
131	1407 3350	IC - SN74LS74AM	
132	1407 3481	IC - SN74AS32NS	
133	1407 4090	IC - M66250FP	
134	1407 4091	IC - M66251AFP	
135	1407 4092	IC - M66253FP	

Index No.	Part No.	Description	Q ty Per Assembly
136	1407 4188	IC - HD6415108F10	
137	1407 4192	IC - SN74LS244M	
138	1407 4194	IC - SN74LS08M	
139	1407 4195	IC - HD74LS06FP	
140	1407 4196	IC - SN74LS151M	
141	1407 4198	IC - DM74ALS240ASJ	
142	1407 4199	IC - DM74ALS244ASJ	
143	1407 4275	TTL - IC - SN74AS240NS	
144	1407 4335	IC - M66236FP	
145	1407 4427	TTL - IC - SN74AS157NS	
146	1407 4491	SRAM - 256kbit-CY7C199-20VC	
147	1408 0425	IC - NJM79L05	
148	1408 1011	IC - M5237ML	
149	1408 1029	Operational Amplifier - AD847JR	
150	1408 1033	IC - NJM2103M	
151	1408 1048	IC - MB86022PF	
152	1503 0498	Oscillator - 19.6608MHz	
153	1503 0520	Oscillator - 37.1843MHz	
154	1601 1413	Resistor - RCB8C330J	
155	1601 2957	Resistor - RCE9A472J	
156	1601 4021	Resistor - RCE9A103J	
157	1602 0918	Filter - 270pf - EMI	
158	1602 7083	EMI Filter - TU10M	
159	1602 7085	Filter - TV50M	
160	1602 7096	Filter - TX14131NB	
161	1605 0283	Capacitor - 1ηF	
162	1605 0435	Capacitor - 0.47ηF +80% -20% 16V	
163	1607 0069	Fuse - Bl02RN2-R62-PB	
164	1607 0477	Coil - BLM21A121SPB	
165	1630 1121	Resistor - 120P 5% 1/8W	
166	1630 2361	Resistor - 360P	
167	1630 3102	Resistor - 1KP 1/10W 5%	
168	1630 3103	Resistor - 10KP 1/10W 5%	
169	1630 3152	Resistor - 1.5kP - 1/10W	

Index No.	Part No.	Description	Q ty Per Assembly
170	1630 3153	Resistor - 15K P 5% 1/10W	
171	1630 3221	Resistor - 220 P 5% 1/10W	
172	1630 3222	Resistor - 2.2KP 1/10W 5%	
173	1630 3330	Resistor - 33 P 5% 1/10W	
174	1630 3470	Resistor - 47P 1/10W 5%	
175	1630 3471	Resistor - 470P - 1/10W	
176	1630 3472	Resistor - 4.7KP 1/10W 5%	
177	1630 4100	Resistor - 10 P 5% 1/16W	
178	1630 4220	Resistor - 22 P 5% 1/16W	
179	1630 4330	Resistor - 33P 5% 1/8W	
180	1630 4472	Resistor - 4.7KP 5% 1/16W	
181	1633 0000	Resistor - 0P 1/10W:Jamper Chip	
182	1633 1601	Resistor - 1.6KP 1% 1/8W	
183	1633 1801	Resistor - 1.8KP 1% 1/8W	
184	1633 4301	Resistor - 4.3KP 1% 1/8W	
185	1633 5901	Resistor - 5.9K P 1% 1/10W	
186	1634 2209	Resistor - 22.0P 1% 1/8W	
187	1634 6801	Resistor - 6.8KP 1% 1/8W	
188	1642 0101	Capacitor - 100ηF 20% 50V	
189	1643 2100	Capacitor - 10ηF 20%	
190	1660 3471	Capacitor - 470PF 50V	
191	1660 5102	Capacitor - 1000PF 10% 50V	
192	1660 5103	Capacitor - 10000PF 10% 50V	
193	1660 7103	Capacitor - 10000PF 50V	
194	1660 9104	C - 0.1ηF 25V	
195	1901 0008	DRAM - 4M 1MX4 70NS G2	
196	1902 0006	IC - SRAM 256KX8 70NS G1	

52. AC Main Harness (A172/A199)



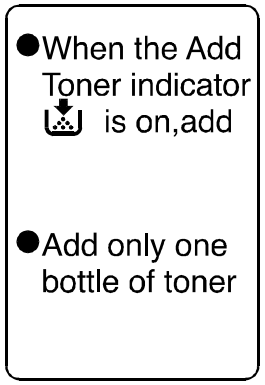
52. AC Main Harness (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
*	A109 5382	AC Main Harness	1

Index No.	Part No.	Description	Q ty Per Assembly
101	1100 0863	Stud Pin	
102	1100 0864	Housing - AWG14-20	
103	1100 1241	Socket - MATE-N-LOCK	
104	1100 1339	Pin Contact	
105	1100 1344	Pin Contact	
106	1100 1669	Connector - 1p	
107	1102 0941	Connector - 4p	
108	1102 0946	Housing - 3p	
109	1102 0947	Housing - 3p	
110	1102 0948	Housing - 4p	
111	1102 1017	Housing - 2p Red	
112	1102 1171	Connector - 5p	
113	1102 1404	Connector - 1p	
114	1102 1517	Connector - 4p	
115	1102 5187	Connector - 14p	
116	1102 6213	Connector - 1p	

53. Decal And Document (A172/A199)

1



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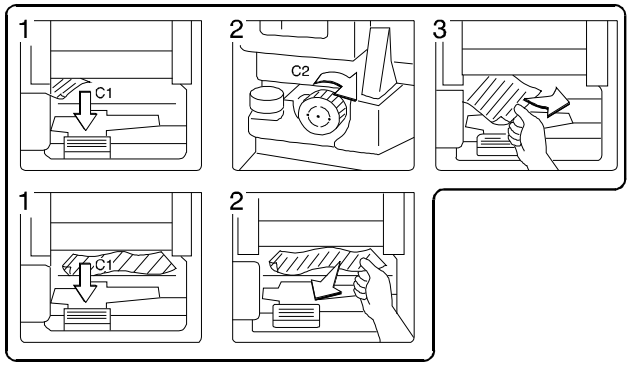

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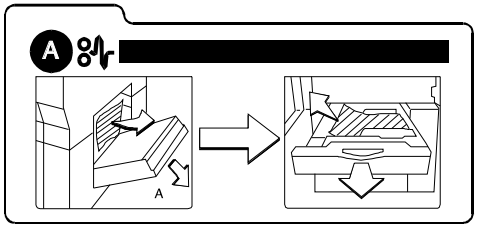

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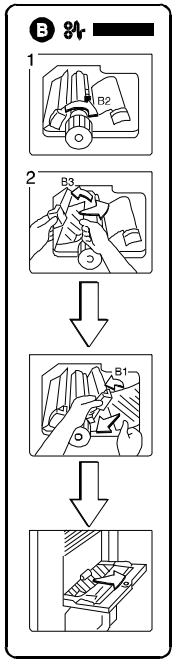

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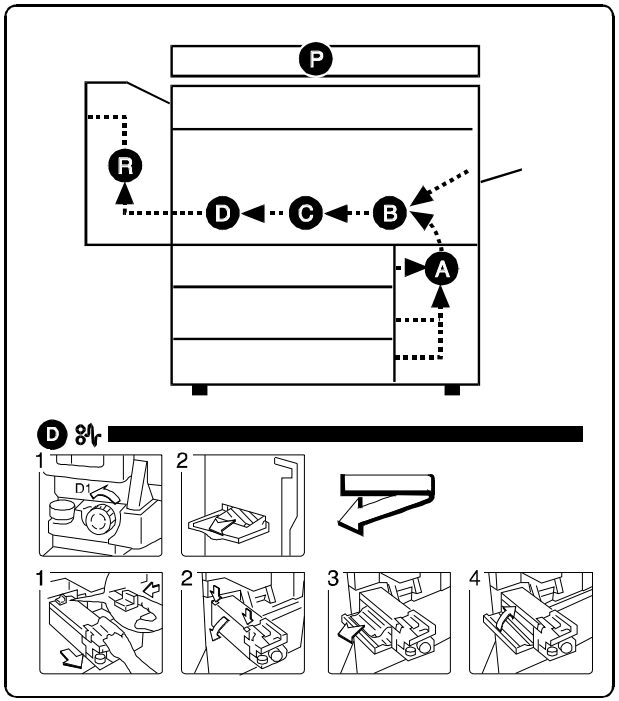
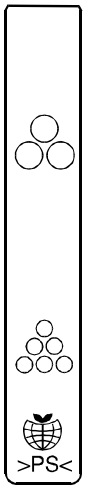


53. Decal And Document (A172/A199)

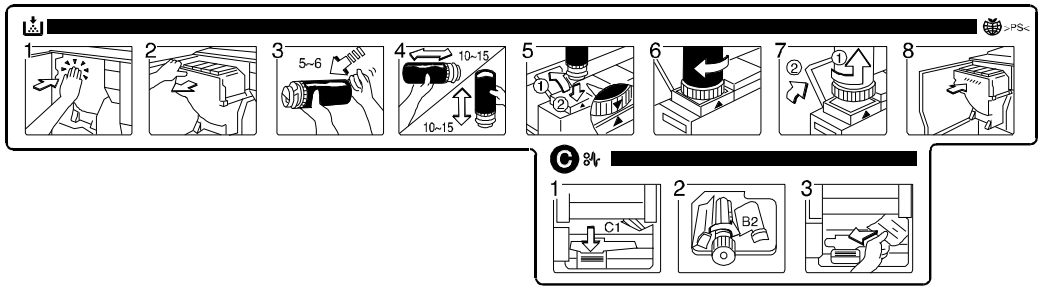


8

nashuatec

Gestetner

Rex•Rotary



10

11

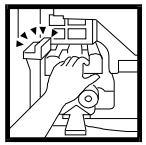
Copying to be Prohibited

Do not make copies of anything which is prohibited from copying by law.The following items are normally prohibited from copying by national law.Other items may be prohibited by local law.

- Money
- Stamps
- Bonds
- Stocks
- Bank drafts
- Checks
- Passports
- Driver's licenses

12

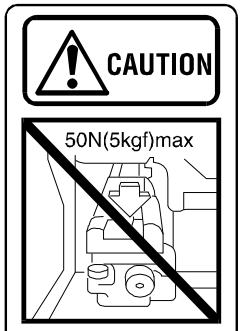
CAUTION



When sliding the fusing unit back in, make sure that it clicks into position.
If it does not, an error will be indicated.

Unnecssary to remove this seal for recycling >PS<

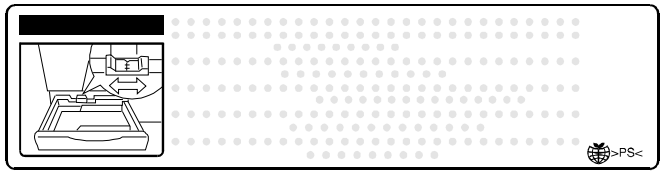
13



14

DANGER	NVISIBLE LASER RADIATION WHEN OPEN AVOID DIRECT EXPOSURE TO BEAM
VORSICHT	LASERSTRAHLUNG. WENN ABOECKUNG GEOFFNET.NICHT DEM STRAHL AUSSETZEN

15



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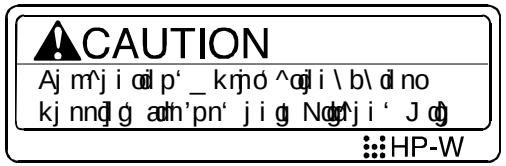

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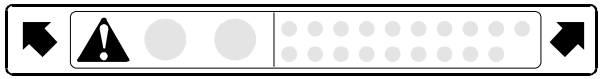

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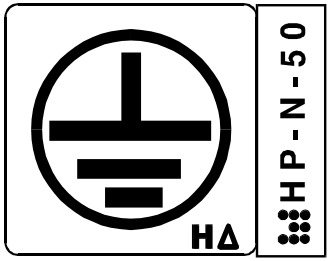

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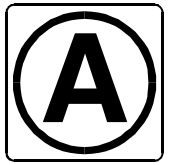

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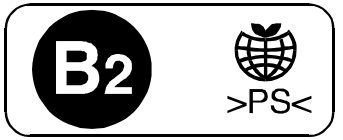

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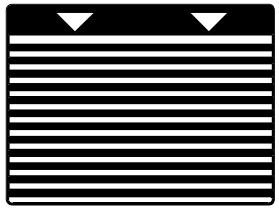
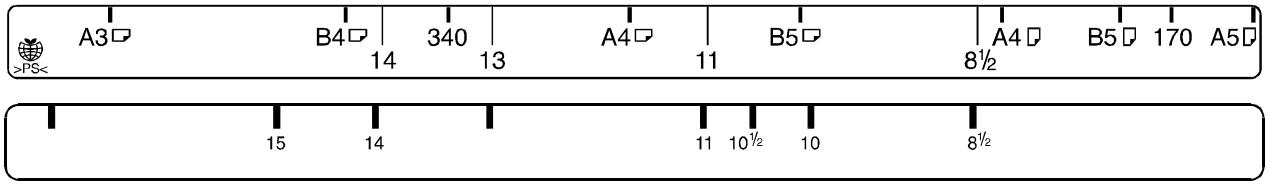


53. Decal And Document (A172/A199)

26



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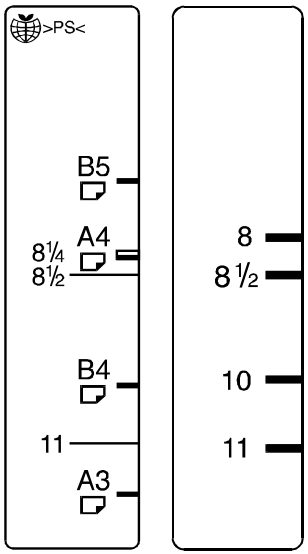

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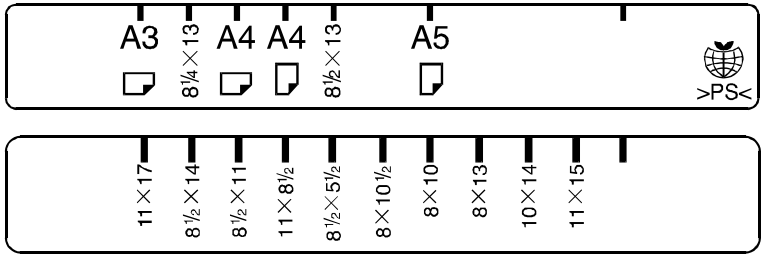

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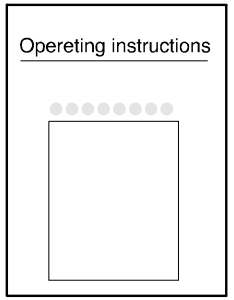

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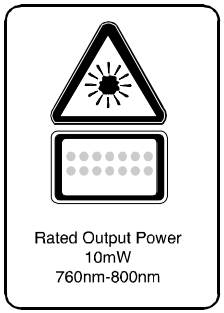


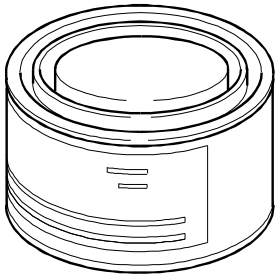
53. Decal And Document (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	A072 1383	Decal - Adding Toner	1
2	5203 4165	Fusing Thermofuse Decal	1
3	A109 1551	Decal - Misfeed Removal C	1
4	A109 1552	Decal - Misfeed Removal A	1
5	A109 1553	Decal - Misfeed Removal B	1
6	A109 1554	Decal - Misfeed Removal D	1
7	A109 1555	Decal - Total Counter	1
8	A153 6409	Decal - Keytop Cover (GES)	1
8	C225 2866	Decal - Key Top Cover (REX)	1
8	C225 2867	Decal - Cover - Panel - Nashua	1
9	A172 1590	Decal - Toner Supply	1
10	A172 1591	Decal - Color	1
11	A172 6701	Decal - Warning - English	1
12	A172 6703	Decal - Operation	1
13	A172 6707	Decal - Warning	1
14	AA00 0602	Caution Decal - LD Unit Cover	3
15	AA00 0134	Decal - Universal Tray	1
16	AA00 0174	Decal - Tray Cover 1st	1
17	AA00 0175	Decal - Paper Tray Cover No2	1
18	AA00 0176	Decal - Paper Tray Cover No3	1
19	AA00 0339	Decal - Silicone Oil	1
20	AA00 0539	Decal - High Temperature	1
21	AA00 1190	Decal - Ground	1
22	AA00 1281	Decal - Lever	1
23	AA00 1346	Decal - Misfeed Removal A	1
24	AA00 1377	Decal - Positioning Display - B2	1
25	AA00 2010	Decal - Paper Level	1
26	AA00 2178	Decal - End Fence - A4	1
26	AA00 2179	Decal - End Fence LT	1
27	AA00 2176	Decal - Side Fence - A4	1
27	AA00 2177	Decal - Side Fence - LT	1
28	AA00 2181	Decal - LT	1
28	AA00 2184	Decal - A4	1
29	AA00 2217	Decal - Bypass Feed - A4	1
29	AA00 2230	Decal - Paper Size - LT	1

Index No.	Part No.	Description	Q ty Per Assembly
30	A172 8607	Operating Instructions - English LT	1
30	A172 8608	Operating Instruction - English A4	1
30	A172 8650	Operating Instructions - English	1
30	A172 8690	Opersting Instruction - English A4	1
30	A172 8697	Operating Instruction - English LT	1
31	AA00 0445	Caution Decal - LD Unit	1

54. Special Tools (A172/A199)

1



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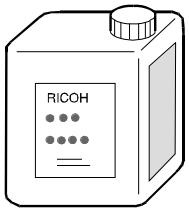

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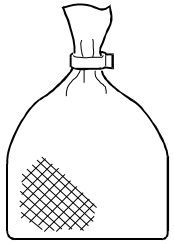

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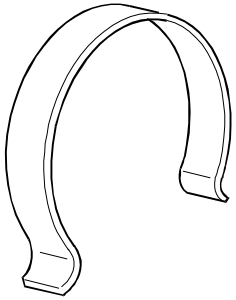

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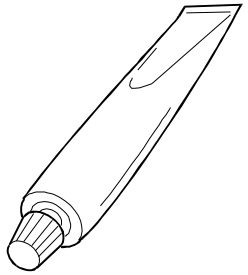

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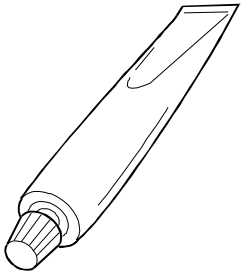

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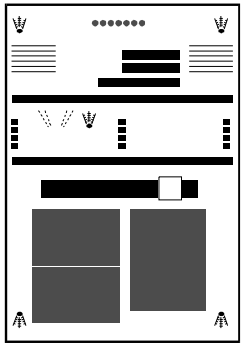

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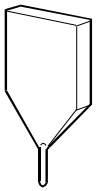

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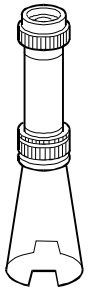

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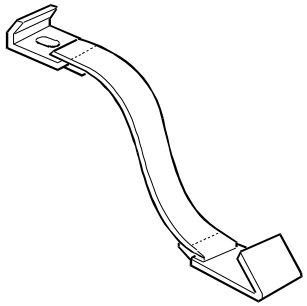

54. Special Tools (A172/A199)

Index No.	Part No.	Description	Q ty Per Assembly
1	5219 9300	Grease Mt - 1	1
2	5420 9550	Silicone Oil	1
3	5442 9101	Setting Powder	1
4	A006 9103	Omega Clamp	1
5	A008 9502	Silicone Grease - G40m	1
6	A012 9501	Scanner Positioning Pin - 4pcs/set	1
7	A028 9300	Grease Barrierta JFE 55/2	1
8	A092 9503	C4 Color Test Chart (3 Pcs/set)	1
9	5205 8730	Counter Set Key	1
10	A109 9001	DJF Fixing Band	1
11	C401 9503	20x Magnification Scope	1

Index No.	Part No.	Description	Q ty Per Assembly

PARTS INDEX

PM Parts Index

Section Name	Part No.	Description in Service Manual	Description in Parts Catalog	Q ty per Assembly	Page and Index No
Optics Section 2 (A172/A199)	AX52 0030	Exposure lamp	Exposuer Lamp - 75V 200W	1	21- 13
Optics Section 4 (A172/A199)	AA01 2094	Optics Cooling Fan Filter	Dust Filter - EFA-15N	1	25- 16
Paper Feed Section 1 (A172/A199)	AF03 0020	Pick-up Roller	Pick-up Roller	3	41- 19
	AF03 1022	By-pass Paper Feed Roller	Paper Feed Roller	3	41- 18
Paper Feed Section 2 (A172/A199)	AF03 2023	Separation Roller	Separation Roller	3	43- 25
By-pass Feed Table (A172/A199)	AF03 0021	By-pass Pick-up Roller	Pick-up Roller	1	45- 34
	AF03 1023	Paper Feed Roller	Paper Feed Roller	1	45- 29
	AF03 2021	By-pass Separation Roller	Separation Roller	1	45- 27
Around The Drum (A172/A199)	A172 7642	Corona Wire/Grid Cleaner	Charge Wire/Grid Cleaner	1	49- 29
	AD02 0056	PCC Wire	PCC Wire	1	49- 6
	AD02 0069	Charge Corona Grid	Charge Corona Grid	1	49- 17
	AD02 0070	Charge Corona Wire	Charge Corona Wire	1	49- 18
Drum Unit 1 (A172/A199)	A109 3623	Bias Roller Blade	Bias Roller Blade	1	51- 25
	A172 3601	Cleaning Brush	Cleaning Brush	1	51- 14
	A172 3602	Drum Lubricant Bar	Lubricant Bar	1	51- 29
Drum Unit 2 (A172/A199)	A172 3598	Cleaning Blade	Cleaning Blade	1	53- 11
Transfer Belt Unit 1 (A172/A199)	A109 6130	Transfer Belt	Transfer Belt	1	67- 15
Transfer Roller Unit (A172/A199)	A172 6251	Paper Discharge Plate	Paper Discharge Plate	1	71- 2
	A172 6269	Roller Lubricant Bar	Roller Lubricant Bar	1	71- 24
	AD04 1037	Transfer Roller Blade	Cleaning Blade	1	71- 8
Belt Cleaning Unit (A172/A199)	A172 6305	Belt Lubricant Bar	Lubricant Bar	1	75- 35
	A172 6308	Cleaning Blade	Cleaning Blade	1	75- 12
Toner Collection Section (A172/A199)	AA01 2068	Inner Cooling Fan Filer	Inner Cooling Fan Filter	1	77- 13
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IMPORTANT SAFETY NOTICES

PREVENTION OF PHYSICAL INJURY

1. The wall outlet should be near the copier and easily accessible.
2. Note that some components of the copier and the paper tray unit are supplied with electrical voltage even if the main switch is turned off.
3. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.
4. If the hot roller temperature is low when the main switch is turned on, the copier starts process control self check automatically. Keep hands away from the mechanical and the electrical components to avoid any injury.
5. If the start key is pressed before the copier completes the warm-up period (Start key starts blinking red and green alternatively), keep hands away from the mechanical and the electrical components as the copier starts making copies as soon as the warm-up period is completed.
6. The inside and the metal parts of the fusing unit become extremely hot while the copier is operating. Be careful to avoid touching those components with your bare hands.

HEALTH SAFETY CONDITIONS

1. Never operate the copier without the ozone filters installed.
2. Always replace the ozone filters with the specified ones at the specified intervals.
3. Toner and developer are non-toxic, but if you get either of them in your eyes by accident, it may cause temporary eye discomfort. Try to remove with eye drops or flush with water as first aid. If unsuccessful, get medical attention.

OBSERVANCE OF ELECTRICAL SAFETY STANDARDS

1. The copier and its peripherals must be installed and maintained by a customer service representative who has completed the training course on those models.
2. The RAM board on the main control board has a lithium battery which can explode if replaced incorrectly. Replace the battery only with an identical one. The manufacturer recommends replacing the entire RAM board. Do not recharge or burn this battery. Used batteries must be handled in accordance with local regulations.

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SAFETY AND ECOLOGICAL NOTES FOR DISPOSAL

1. Do not incinerate the toner bottle or the used toner. Toner dust may ignite suddenly when exposed to open flame.
2. Dispose of used toner, developer, and organic photoconductor according to local regulations. (These are non-toxic supplies.)
3. Dispose of replaced parts in accordance with local regulations.
4. When keeping used lithium batteries in order to dispose of them later, do not put more than 100 batteries per sealed box. Storing larger numbers or not sealing them apart may lead to chemical reactions and heat build-up.

LASER SAFETY

The Center for Devices and Radiological Health (CDRH) prohibits the repair of laser-based optical units in the field. The optical housing unit can only be repaired in a factory or at a location with the requisite equipment. The laser subsystem is replaceable in the field by a qualified Customer Engineer. The laser chassis is not repairable in the field. Customer engineers are therefore directed to return all chassis and laser subsystems to the factory or service depot when replacement of the optical subsystem is required.

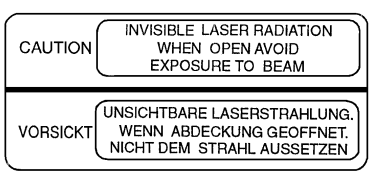
⚠ DANGER

Use of controls, or adjustment, or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

⚠ WARNING FOR LASER UNIT

DANGER: Turn off the main switch before attempting any of the procedures in the Laser Unit section. Laser beams can seriously damage your eyes.

CAUTION MARKING:



INTRODUCTION

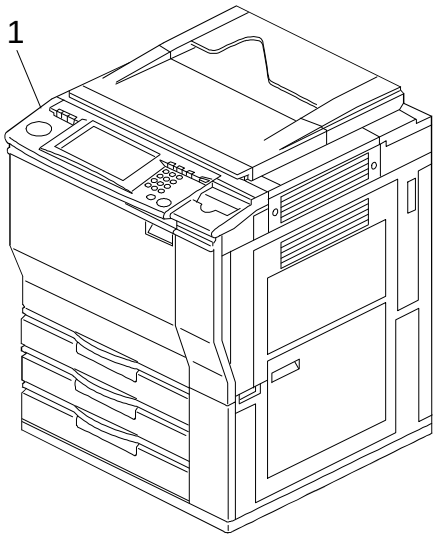
The A172/A199 copier (product name: LILY) is based on **the A109 copier (DFC-ALPHA)**, the base copier.

This documentation gathers the A172/A199 differing points from the base copier that service personnel will need to maintain this copier. Therefore, this documentation should be treated as a insert version of the base copier's service manual, although it has a separate binder. It should always be utilized together with the base copier's service manual.

SECTION 1

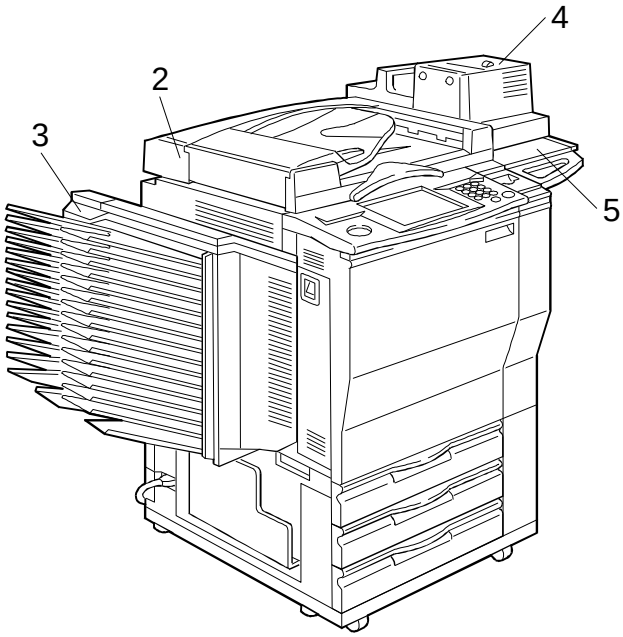
OVERALL
MACHINE INFORMATION

1. MACHINE CONFIGURATION



A172V500.wmf

- Copier -



A172V501.wmf

- Full System -

Item	Machine Code	Note	No.
Copier	A172 A199	• A172 is the edit version with a full color operation panel. • A199 is the non-edit version with a black & white operation panel. • An English language ROM board is installed in -17/29/10/22/15 machines. • No language ROM board is installed in -27/26 machines.	1
Dual Job Feeder	A610	• Common with A175/A176/A177/A191/A192 copiers.	2
Sorter (15-bin)	A322	• A sorter adapter (A527) is required for installation.	3
Film Projector Unit	A718	• A holder (A702-18) is required for installation.	4
Holder	A702-18	• The holder can be installed independently as an original table.	5
Language ROM board (for operation panel)	A654	• The following languages are available: English (A4), German, French, Italian, Spanish, (Universal).	—

2. SPECIFICATIONS

2.1 SPECIFICATIONS

Specifications are subject to change without notice.

Configuration: Console

Copy Process: Dry electrostatic transfer system

Resolutions: 400 dpi

Gradations: 256 gradations

Original Type: Sheet/book, object

Original Size: Maximum: A3 (lengthwise), 11" x 17" (lengthwise)

Original Alignment: Rear-left corner

Copy Paper Weight:

- Paper Tray: 64 - 104.7 g/m^2 or 17 - 28 lb
- Bypass Feed Tray: 64 - 157 g/m^2 or 17 - 42 lb

NOTE: With paper heavier than 104.7 g/m^2 or 28 lb, use the bypass feed tray and select Thick Paper mode.

Available Copy Paper Size:

Tray	Paper Direction	A4/A3 version	LT/DLT version
1st /2nd Tray	Lengthwise	A3, A4, 8 1/2" x 13" (F4), 8 1/4" x 13"	11" x 17" (DLT), 11" x 15", 10" x 14", 8 1/2" x 14" (LG), 8" x 13" (F), 8 1/2" x 11" (LT), 8" x 10 1/2", 8" x 10"
	Sideways	A4, A5	11" x 8 1/2" (LT), 8 1/2" x 5 1/2" (HLT)
3rd Tray	Lengthwise	A3, B4, A4, B5, A5, 11" x 17" (DLT), 11" x 15", 10" x 14", 8 1/2" x 14" (LG), 8 1/2" x 13" (F4), 8 1/4" x 13", 8" x 13" (F), 8 1/2" x 11" (LT), 8" x 10 1/2", 8" x 10", 5 1/2" x 8 1/2" (HLT)	
	Sideways	A4, B5, A5, 11" x 8 1/2" (LT), 8 1/2" x 5 1/2" (HLT)	
Bypass Feed Tray	Lengthwise	A3, B4, A4, B5, A5, B6, A6	11" x 17" (DLT), 10" x 14", 8 1/2" x 11" (LT), 8" x 13" (F), 5 1/2 x 8 1/2" (HLT)
	Sideways	A4, B5, A5, B6, 8 1/2" x 11"	8 1/2" x 11" (LT), 5 1/2" x 8 1/2" (HLT)
	Non-standard paper size	Horizontal direction: 148 - 432 mm or 5.8" - 17.0" Vertical direction: 100 - 297 mm or 3.9" - 11.7"	

Warm-up Time:	About 8 minutes (at 20°C or 68°F)
First Copy Time: (A4 or 8 1/2" x 11" sideways)	• Full Color (4 scans): 15.5 seconds • Single Color: Black, Yellow, Magenta, Cyan: 8.8 seconds Red, Green, Blue, Orange, Light Green: 11.5 seconds. **NOTE:** 1) When selecting OHP/Thick Paper modes, copying speed is reduced. 2) After changing some modes, the first copy time will take longer than usual.
Copying Speed: (Standard modes)	• Full Color (4 scans): A4 or 8 1/2" x 11" sideways: 6 copies/minute A3 or 11" x 17": 3 copies/minute • Single Color (Black, Yellow, Magenta, Cyan): A4 or 8 1/2" x 11" sideways: 31 copies/minute A3 or 11" x 17": 15 copies/minute • Single Color (Red, Green, Blue, Orange, Light Green): A4 or 8 1/2" x 11" sideways: 10 copies/minute A3 or 11" x 17": 5 copies/minute **NOTE:** When selecting OHP/Thick Paper modes, copying speed is reduced.
Non-reproduction Area:	• Leading edge: 5 ± 2 mm or 0.2" ± 0.08" • Side: 2 ± 2 mm or 0.08" ± 0.08", Total less than 4 mm or 0.16" • Trailing edge: 2 ± 2 mm or 0.08" ± 0.08"
Copy Number Input:	Number keys, 1 to 99
Automatic Reset:	1-minute standard setting; can also be set to 10 to 900 seconds in 1-second steps, or to no auto reset.
Paper Feed:	Paper Tray x 3 (500 sheets of paper each) Bypass Feed Tray (50 sheets of paper with paper lighter than 104.7 g/m^2 or 28 lb)

Copy Tray Capacity: 100 sheets of paper

Toner Replenishment: Bottle type (340g/bottle)

Reproduction Ratio:
- A4/A3 version: 25%, 50%, 65%, 71%, 75%, 82%, 93%, 100%, (Full Size), 115%, 122%, 141%, 200%, 400% + User ratio x 2
- LT/DLT version: 25%, 50%, 65%, 74%, 77%, 85%, 93%, 100%, (Full Size), 121%, 129%, 155%, 200%, 400%, + User ratio x 2

Zoom: From 25% to 400% in 1% steps

Power Source: 115 V 60 Hz, more than 12 A (for NA)
220 ~ 240 V 50/60 Hz, more than 7 A (for EU and AA)

Power Consumption: (Copier only)
- Maximum: less than 1.5 kW
- Warm-up: 1.40 kW
- Stand-by: 0.93 k W
- Copy Cycle: 1.20 kW

Noise Emission

Sound pressure level (The measurements are made in accordance with ISO 7779 at the operator position.)

	Copier only
Stand-by	Less than 42 dB (A)
Copying	Less than 56 dB (A)

Sound power level (The measurements are made in accordance with ISO 7779.)

	Copier only
Stand-by	Less than 59 dB (A)
Copying	Less than 69 dB (A)

Dimensions (W x D x H):
- Copier Only:
  692 x 713 x 1026 mm or 27.3" x 28.1" x 40.4"
- Full System*:
  1499 x 713 x 1099 mm or 59.1" x 28.1" x 43.2"
  (*= Copier + Dual Job Feeder + Sorter + Holder)

Weight:	• Copier Only: 200 kg or 440.8 lb
Optional Equipment	• Dual Job Feeder • Sorter • Sorter Adapter • Projector Unit • Holder for Projector Unit • Key Counter • Interface Kit for Controller

2.2 FUNCTIONS: BASIC MODEL VS EDIT MODEL

This machine comes in two versions. Refer to the following table for features available on your machine.

Functions		Edit type	Basic type
Copy Image Density Adjustment (Auto/Manual)		✓	✓
Auto Color Selection		✓	✓
Full Color		✓	✓
Back		✓	✓
Single Color		✓	✓
Twin Color		✓	✓
Original Image Type Selection		✓	✓
Paper Selection (Auto/Manual)		✓	✓
Reducing/ Enlarging	Preset R/E	✓	✓
	Zoom	✓	✓
	Size Magnification	✓	✓
	Directional Size Magnification	✓	✓
	Poster Mode	✓	✓
Shift/Book	Centering/Cornering	✓	✓
	Margin Adjustment	✓	✓
	Erase	✓	✓
	Single Copies	✓	✓
Color Creation	Color Conversion	✓	✓
	Color Erase	✓	✓
	Color Background	✓	✓
Image Creation	Outline	✓	✓
	Positive/Negative	✓	✓
	Shadow	✓	✓
	Mirror	✓	✓
	Slanted	✓	✓
	Image Repeat	✓	✓
	Image Overlay	✓	✓
Color Adjustment/ Memory	User Color Memory	✓	✓
	Single Color Adjustment	✓	✓
	Color Balance Adjustment	✓	✓
	Color Balance Sample	✓	✓
	Image Adjustment	✓	✓
Area Editing		✓	—
Interrupt Copying		✓	✓
Recall		✓	✓
Auto Reduce/Enlarge		✓	✓
Bypass Feed Copying		✓	✓
Duplex Copying		✓	✓
Default Setting		✓	✓
User Tools		✓	✓
Display Color		Full color	Black & white

2.3 NEWLY-ADDED OPERATING FEATURES

❍: Available ✗: Not Available

No.	Features	LILY (A172/A199)	DFC-ALPHA (A109)
1	Auto Image Density	Full Color & Black Copy	Black Copy only
2	Auto Color Calibration	❍	✗
3	Duplex Copying	❍	✗
4	Twin Color	❍	✗
5	Single Color	80 (+1) colors	8 colors
6	User Color	48 colors	3 colors
7	Color Back ground	84 (+1) colors	13 colors
8	Paint	84 (+1) colors	13 colors
9	Color Line	❍ (Edit type only)	✗
10	Frame Line	❍ (Edit type only)	✗
11	Image Overlay	❍ (Edit type only)	✗
12	Area Editing	See the next page	

1. Auto Image Density mode can be selected when in Full Color mode.
2. Auto Color Calibration can be performed by the user.
3. Using the by-pass feed tray, rear side copying is available.
4. Twin Color mode copies black parts in black and other parts in the selected color.
5. Single Color
   (8 colors x 4 density levels) + (12 user colors x 4 density levels) + 1 scan color = 81 colors
   * scan color = Edit type only
6. User Color
   12 colors x 4 density levels = 48 possible colors
   The total percentages of the mixed colors must be 255% or less.
7. Color Background
   (9 colors x 4 density levels) + (12 user colors x 4 density levels) + 1 scan color = 85 colors
   * scan color = Edit type only
8. Paint (Edit type only)
   (9 colors x 4 density levels) + (12 user colors x 4 density levels) + 1 scan color = 85 colors
   * Scan color = Edit type only
9. Color Line (Edit type only)
   In the Area Editing mode, designated lines can be colored.
   Available colors: 85 colors = 81 Single colors + (Bk x 4 density levels)

10. Frame Line
    In the Area Editing mode, the outlines of the designated areas can be colored.

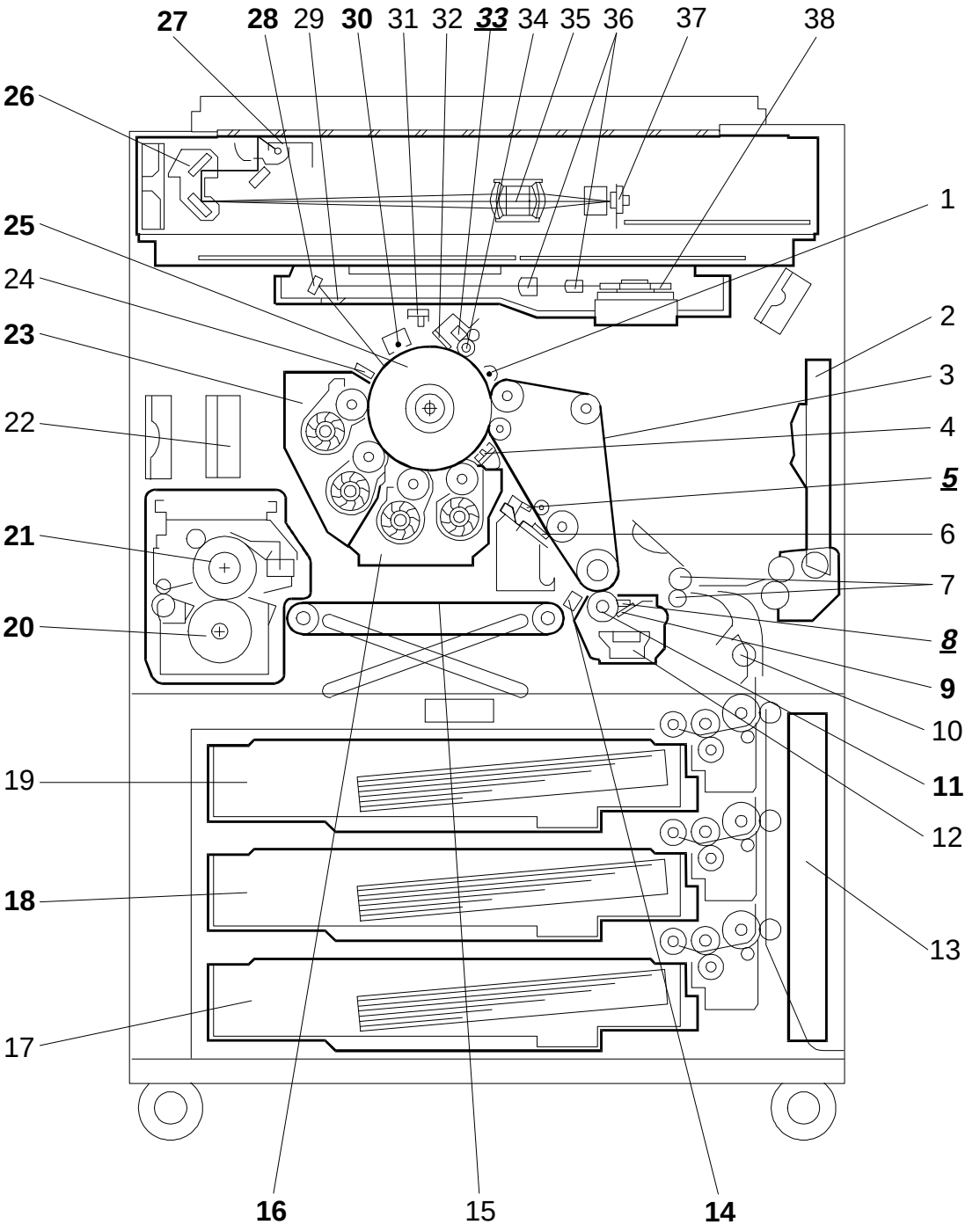
11. Image Overlay
    This function makes a copy merging images of two originals.

12. Area Editing mode

	LILY (A172)	**DFC-ALPHA (A109)**
Area Shape	Rectangle, Polygon,Right Angle Polygon, Closed Loop, Line	Rectangle, Polygon, Right Angle Polygon, Closed Loop
Number of Areas	Maximum: 500 points However, 1 area or line must be of 30 or fewer points.	Creative Editing: 6 Areas 1 area must be of 10 orfewer points Color Editing: 6 Groups Maximum 500 points
Method of Designating Areas	Editor Pen and Cursor	Cursor only
Canceling Areas	Not only single points but already closed areas can be cleared.	Only single points before closing the area can be cleared.
Maximum Number of Groups/Areas	15 Groups Up to 3 job patterns can be applied. Changing the color of one job pattern will not affect the original settings of the job pattern.	Creative Editing: 3 Areas Color Editing: 6 Groups When in Color Editing mode, up to 3 job patterns can be applied, Changing the color of one job pattern will not affect the original settings of the job pattern.
Storing the Area Editing job settings in Program Mode	Always available.	Not available in Creative Editing mode. Available in Color Editing mode.
Canceling Groups	Available. However, canceling a group will remove it from the total number of groups.	Not available.

MEMO

3. MECHANICAL COMPONENT LAYOUT



A172V502.wmf

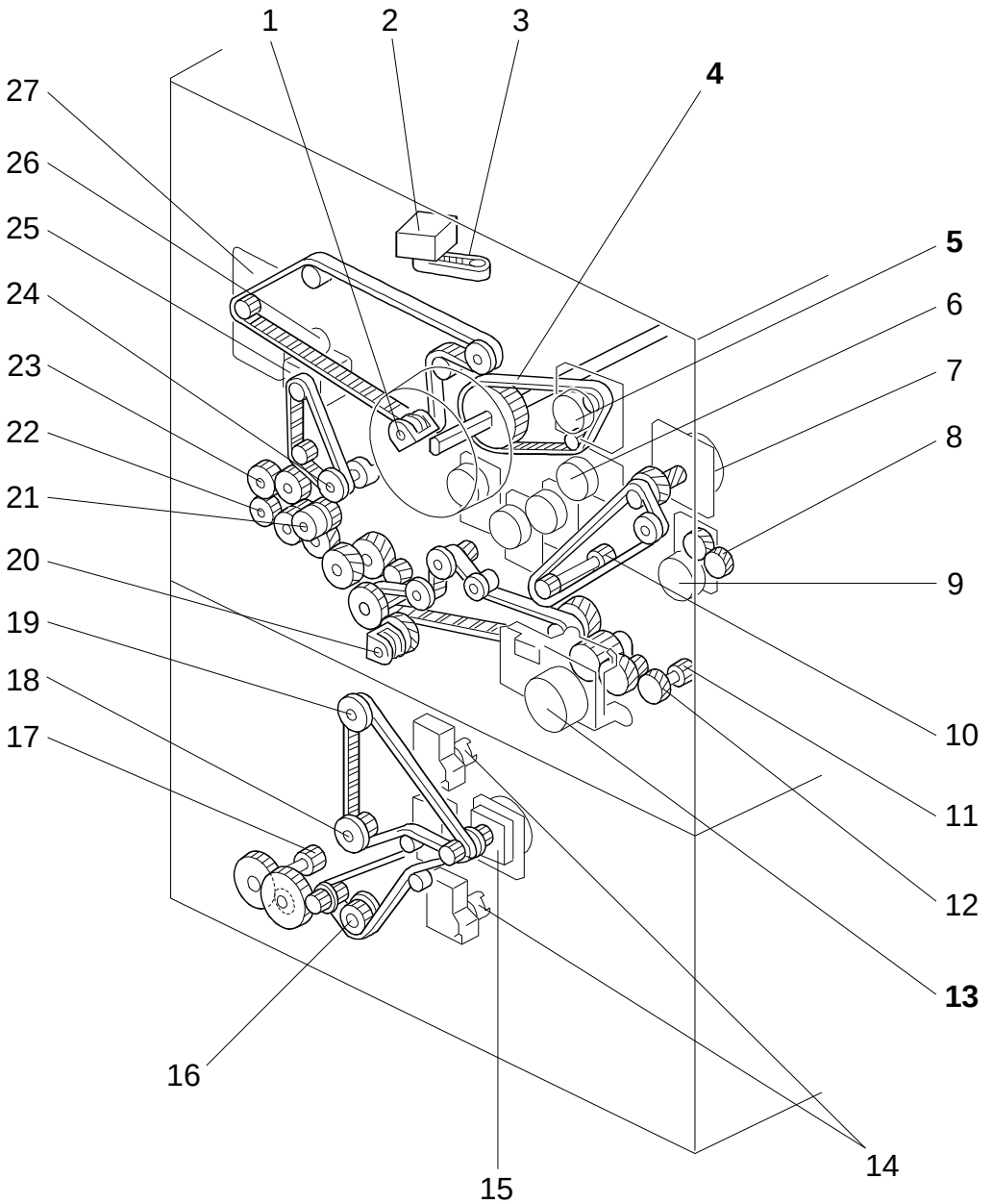
Units different from A109
Bold Italic : Additional units
Bold : Modified units

1. Pre-cleaning Corona Unit
2. By-pass Feed Table
3. Transfer Belt
4. ID Sensor
5. ***Belt Lubricant Bar***
6. Belt Cleaning Blade
7. Registration Rollers
8. ***Roller Lubricant Bar***
9. **Transfer Roller Blade**
10. Relay Roller
11. **Transfer Roller**
12. Toner Catch Pan
13. Toner Collection Bottle
14. **Paper Discharge Plate**
15. Transport Belt
16. **Magenta/Yellow Development Unit**
17. 3rd Paper Tray
18. **2nd Paper Tray**
19. 1st Paper Tray
20. **Pressure Roller**
21. **Hot Roller**
22. Development Ozone Filter
23. **Black/Cyan Development Unit**
24. Drum Potential Sensor
25. **OPC Drum**
26. **2nd Scanner**
27. **1st Scanner**
28. **Drum Mirror**
29. Toner Shield Glass
30. **Charge Corona Unit**
31. Quenching Lamp
32. Drum Cleaning Blade
33. ***Drum Lubricant Bar***
34. Cleaning Brush
35. Lens
36. f-theta Lenses
37. CCD Board
38. Polygon Mirror

Deleted units from A109

- Lubricant brush

4. DRIVE LAYOUT



A172V503.wmf

Units different from A109
Bold Italic : Additional units
Bold : Modified units

1. Transfer Belt Position Clutch
2. Scanner Motor
3. Scanner Drive Pulley
4. **Drum Timing Belt**
5. **Drum Motor**
6. Bk-Sleeve Motor
7. Color-Development Drive Motor
8. Bk-Development Drive Gear
9. Bk-Development Drive Motor
10. Color-Development Drive Gear
11. Transport Unit Drive Gear
12. Fusing Unit Drive Gear
13. **Transport Motor**
14. Tray Lift Motors
15. Paper Feed Motor
16. 3rd Paper Feed Drive Pulley
17. Toner Collection Tank Drive Gear
18. 2nd Paper Feed Drive Pulley
19. 1st Paper Feed Drive Pulley
20. Transfer Roller Position Clutch
21. Registration Clutch
22. Relay Roller Drive Gear
23. By-pass Feed Drive Gear
24. Transfer Belt Drive Pully
25. Transfer Belt Motor
26. Lubricant Brush Clutch
27. Cleaning Motor

5. ELECTRICAL COMPONENT DESCRIPTIONS

Refer to the electrical component layout on the waterproof paper in the pocket for symbols and index numbers.

Symbol	Name	Function	Index No.
Printed Circuit Boards			
PCB1	DC power supply	Provides dc power.	20
PCB2	Lamp regulator	Provides dc power for the exposure lamp.	1
PCB3	AC drive	Provides ac power for the hot roller and pressure roller fusing lamps.	11
PCB4	High voltage supply - C/G	Supplies high voltage to the charge corona and grid plate.	12
PCB5	High voltage supply - B	Supplies high voltage to the Y/M/C/Bk sleeve rollers as development bias or to the OPC drum for drum potential sensor calibration.	26
PCB6	High voltage supply - T1/PCC/BR	Supplies high voltage to the belt bias roller, pre-cleaning corona, and cleaning bias roller.	13
PCB7	High voltage supply - T2	Supplies high voltage to the transfer roller.	17
PCB8	High voltage supply - D	Supplies high voltage to the paper discharge plate.	22
PCB9	Main control	Controls all copier functions both directly or through other control boards.	15
PCB10	Interface 1	Interfaces the input/output of electrical components with the main control board.	21
PCB11	Interface 2	Interfaces the input/output of electrical components with the main control board.	18
PCB12	Transfer belt motor drive	Controls the speed and direction of the transfer belt motor.	14
PCB13	Paper feed interface	Interfaces the input/output of electrical components in the paper supply unit with the main control board.	19
PCB14	Noise filter	Removes electrical noise.	23
PCB15	ID sensor	Detects the density of the ID sensor pattern.	127
PCB16	Operation panel	Controls the touch panel display and monitors the key matrix.	25
PCB17	Polygon motor drive	Controls the polygon motor speed.	8
PCB18	CCD	Converts the light reflected from the original into analog electrical signals for the three basic colors (R/G/B).	9
PCB19	Scanner control	Processes R/G/B video signals from the CCD board to be sent to the IPU board.	7
PCB20	Scanner drive	Interfaces the input/output electrical components in the optics cavity with the scanner control board.	3
PCB21	Image Discriminate	Used for anticounterfeiting.	6
PCB22	Display Editor interface	Interfaces the operation panel board with the IPU board (A172 copier only).	10

Symbol	Name	Function	Index No.
PCB23	Operation Panel Control	Controls the operation panel.	24
PCB24	IPU	Processes R/G/B video signals from the scanner control board and sends Y/M/C/Bk video signals to the LD unit.	2
PCB25	IPU interface	Changes the clock frequency of R/G/B video signals and also sends the synchronizing signal for the polygon motor.	4
PCB26	LD drive	Generates the laser beam for printing the latent image on the drum.	5
PCB27	Laser synchronizing detector	Detects the laser beam to control the start timing of main scan writing.	66
PCB28	Paper width detecting	Detects paper width in the by-pass feed table.	128
PCB29	Wire cleaner drive	Controls ths corona wire cleaner operation.	16
Motors			
M1	Bk - Development drive	Drives the Bk dual mixing roller.	46
M2	C - Sleeve	Turns the C sleeve roller in both directions.	31
M3	M - Sleeve	Turns the M sleeve roller in both directions.	35
M4	Y - Sleeve	Turns the Y sleeve roller in both directions.	34
M5	Drum	Turns the drum.	28
M6	Bk - Sleeve	Turns the Bk - sleeve roller in both directions.	30
M7	Transport	Drives the transport unit, fusing unit, transfer roller, and transfer belt cleaning unit.	45
M8	Color - Development drive	Drives the Y/M/C dual mixing rollers simultaneously.	27
M9	Cleaning	Drives the drum cleaning brush, the lubricant brush, and the transfer belt release mechanism.	32
M10	Scanner	Drives the 1st and 2nd scanners.	29
M11	Transfer belt	Turns the transfer belt drive roller in both directions.	33
M12	Paper feed	Drives the paper feed sections and the cam gear for the toner collection bottle.	39
M13	Polygon	Turns the polygon mirror.	47
M14	Bk - Toner supply	Drives the Bk toner transport and agitation mechanism.	43
M15	C - Toner supply	Drives the C toner transport and agitation mechanism.	42
M16	M - Toner supply	Drives the M toner transport and agitation mechanism.	41
M17	Y - Toner supply	Drives the Y toner transport and agitation mechanism.	40
M18	1st tray lift	Lifts the 1st tray bottom plate.	36
M19	2nd tray lift	Lifts the 2nd tray bottom plate.	37
M20	3rd tray lift	Lifts the 3rd tray bottom plate.	38

Symbol	Name	Function	Index No.
M21	Wire cleaner	Drives the wire/grid cleaner	44
Fan Motors			
FM1	Fusing exhaust	Removes heat from around the fusing unit.	49
FM2	Charge inlet	Provides air flow around the drum charge section.	48
FM3	Inner cooling	Provides air flow around the toner tank and development units.	57
FM4	IPU cooling	Provides air flow around the IPU board.	52
FM5	Polygon motor cooling	Provides air flow around the polygon motor.	53
FM6/7	Transport	Sucks in air to attract copy paper to the transport belts.	55/54
FM8/9	Development exhaust	Removes air and heat from around the drum and development units.	58/59
FM10	Optics exhaust	Exhausts air from under the lens housing cover.	51
FM11	LD cooling	Provides air flow to the LD unit.	50
FM12/13	Optics cooling	Blows air into the optics cavity.	60/61
FM14	DC power supply cooling	Provides air flow to transformers and radiation plates on the dc power supply board.	56
Sensors			
S1	By-pass feed table	Detects whether the by-pass feed table is open or closed.	73
S2	Oil end	Detects whether the silicone oil tank is nearly empty or not.	91
S3	Exit	Detects misfeeds.	100
S4	Transfer belt position	Detects whether the transfer belt is in contact with the drum or not.	67
S5	Humidity	Detects humidity and temperature to calculate the absolute humidity.	88
S6	Drum potential	Detects the drum surface potential.	125
S7	M - Toner density	Detects the toner density in the M development unit.	97
S8	Y - Toner density	Detects the toner density in the Y development unit.	96
S9	Bk - Toner density	Detects the toner density in the Bk development unit.	101
S10	C - Toner density	Detects the toner density in the C development unit.	98
S11	Transport	Detects misfeeds.	95
S12	Registration	Detects the leading edge or trailing edge of the copy paper to control the rotation of the paper feed and registration rollers.	74
S13	Registration guide set	Detects whether the registration guide plate is set or not.	70

Symbol	Name	Function	Index No.
S14	Bk - Toner End	Detects the toner end condition of Bk toner.	94
S15	C - Toner End	Detects the toner end condition of C toner.	93
S16	M - Toner End	Detects the toner end condition of M toner.	92
S17	Y - Toner End	Detects the toner end condition of Y toner.	90
S18	Transfer roller position	Detects whether the transfer roller is in contact with the transfer belt or not.	72
S19	By-pass paper end	Detects whether there is paper on the by-pass feed table or not.	71
S20	By-pass length	Detects whether paper on the by-pass feed table is longer than A4 (Letter) sideways or not.	69
S21	Toner overflow	Detects whether the toner collection bottle is full or not.	86
S22	1st lift	Detects the height of the paper stack in the 1st paper tray to stop the 1st tray lift motor.	76
S23	2nd lift	Detects the height of the paper stack in the 2nd paper tray to stop the 2nd tray lift motor.	77
S24	3rd lift	Detects the height of the paper stack in the 3rd paper tray to stop the 3rd tray lift motor.	80
S25	1st paper end	Detects whether there is paper in the 1st paper tray or not.	89
S26	2nd paper end	Detects whether there is paper in the 2nd paper tray or not.	87
S27	3rd paper end	Detects whether there is paper in the 3rd paper tray or not.	84
S28	1st paper feed	Controls the 1st paper feed clutch off/on timing and the 1st pick-up solenoid off timing.	82
S29	2nd paper feed	Controls the 2nd paper feed clutch off/on timing and the 2nd pick-up solenoid off timing.	85
S30	3rd paper feed	Controls the 3rd paper feed clutch off/on timing and the 3rd pick-up solenoid off timing.	83
S31	Original length - 1	Detects original length.	65
S32	Original length - 2	Detects original length.	63
S33	Original width	Detects original width.	106
S34	Scanner unit lift	Detects whether the scanner unit is lifted or not.	64
S35	Platen cover position	Informs the CPU whether the platen cover is up or down (related to APS/ARE function).	62
S36	Scanner HP	Informs the CPU whether the 1st and 2nd scanners are at the home position or not.	107
Switches			
SW1/2/3/4	Front door safety	Cuts the ac power line through RA1 and detects whether the front door is open or not.	102/103/ 104/105

Symbol	Name	Function	Index No.
SW5/6	Vertical transport set	Cuts the ac power line through RA1 and detects whether the vertical transport guide is open or not.	78/79
SW7	Main	Provides power to the copier. When it is at the standby position, the electrical power is supplied only to the heaters (drum, optics anti-condensation, tray, transfer belt/roller).	99
SW8	2nd paper size	Detects the paper size for the 2nd paper tray and whether the tray is set or not.	75
SW9	3rd tray set	Detects whether the 3rd paper tray is set or not.	81
SW10	1st paper size	Detects the paper size for the 1st paper tray and whether the tray is set or not.	68
Magnetic Clutches			
MC2	Transfer belt position	Controls the touch and release operation of the transfer belt by using drive from the cleaning motor.	108
MC3	By-pass feed	Starts paper feed from the by-pass feed table.	111
MC4	Registration	Drives the registration rollers.	110
MC5	Transfer roller position	Controls the touch and release operation of the transfer roller unit by using drive from the transport motor.	109
MC6	1st feed	Starts paper feed from the 1st paper tray.	113
MC7	2nd feed	Starts paper feed from the 2nd paper tray.	114
MC8	3rd feed	Starts paper feed from the 3rd paper tray.	115
Solenoids			
SOL1	Cleaning entrance seal	Controls the touch and release operation of the cleaning entrance seal on the transfer belt cleaning unit.	122
SOL2	Lubricant bar	Controls the touch and release operation of the lubricant bar.	124
SOL3	Cleaning blade	Controls the touch and release operation of the belt cleaning blade.	123
SOL4	By-pass pick-up	Controls the up/down movement of the pick-up roller in the by-pass feed station.	112
SOL5	1st pick-up	Controls the up/down movement of the pick-up roller in the 1st feed station.	121
SOL6	2nd pick-up	Controls the up/down movement of the pick-up roller in the 2nd feed station.	119
SOL7	3rd pick-up	Controls the up/down movement of the pick-up roller in the 3rd feed station.	117
SOL8	1st separation roller	Controls the up/down movement of the separation roller in the 1st feed station.	120

Symbol	Name	Function	Index No.
SOL9	2nd separation roller	Controls the up/down movement of the separation roller in the 2nd feed station.	118
SOL10	3rd separation roller	Controls the up/down movement of the separation roller in the 3rd feed station.	116
Lamps			
L1	Fusing	Provides heat to the hot roller.	144
L2	Pressure	Provides heat to the pressure roller.	143
L3	Exposure	Applies high intensity light to the original for exposure.	129
L4	Quenching	Neutralizes any charge remaining on the drum surface after cleaning.	126
Heaters			
H1	Lower tray (option)	Turns on when the main switch is off to keep paper dry in the 3rd paper tray.	138
H2	Upper tray (option)	Turns on when the main switch is off to keep paper dry in the 1st and 2nd paper trays.	134
H3/H4	Transfer belt/roller	Turns on when the transfer roller thermoswitch detects 20C° or less to keep the resistance of the transfer roller at a constant level.	136/137
H5	Optics anti-condensation	Turns on when the main switch is off to prevent moisture from forming on the optics.	148
H6	Drum	Turns on when the main switch is off to prevent moisture from forming around the drum.	131
Thermistors			
TH1	Fusing	Monitors the temperature of the hot roller.	133
TH2	Pressure roller	Monitors the temperature of the pressure roller.	142
Thermofuses			
TF1	Fusing	Opens the fusing lamp circuit if the fusing unit overheats.	132
TF2	Pressure roller	Opens the pressure roller lamp circuit if the fusing unit overheats.	141
Thermoswitches			
TS1	Optics	Opens the exposure lamp circuit if the 1st scanner overheats.	130
TS2	Transfer belt/roller	Detects the temperature around the transfer roller in order to keep the resistance of the transfer roller at a constant level.	135

Symbol	Name	Function	Index No.
Counters			
CO1	Black total	Keeps track of the total number of scans for black development in both black and color copy modes.	145
CO2	Full color total	Keeps track of the total number of scans for Yellow, Magenta, and Cyan development in both single and full color copy modes.	146
Others			
CB1	Circuit breaker	Provides back-up high current protection for the electrical components.	139
NF1	Noise filter	Removes electrical noise.	140
CC1	Choke coil	Removes high frequency current.	147

SECTION 2

DETAILED DESCRIPTIONS

1. MAJOR DIFFERENCES FROM THE DFC-ALPHA (A109)

No.	Item	Contents	Details
Process Control			
1	Toner End Detection	The toner end detection software has been eliminated.	A toner end sensor has been added for each color. See 6.2 in section 2 for details.
2	Latent Image Control	The process control for latent image control has been modified.	See 2.1 in section 2 for details.
3	Toner Density Control	VCNT Correction has been modified.	See 2.2 in section 2 for details.
Around The Drum			
1	OPC Drum	The OPC drum layer material (Charge Transfer Layer: CTL) has changed.	To reduce ozone and NOX reaction with the drum (to prolong the lifetime of the drum).
2	Drum Charge Wire	The system has been changed from a double-wire to a single-wire scorotron.	See 3.1 in section 2 for details.
3	Drum Charge Wire/Grid Cleaning	Drum charge wire/grid cleaning has been newly added.	See 3.2 in section 2 for details.
4	Drum Cleaning	Drum lubrication has been newly added.	See 3.4 in section 2 for details.
		The cleaning brush has been changed from a looped-bristle type to a straight-bristle type.	To apply the lubricant evenly on the drum. See 3.4 in section 2 for details.
Optics			
1	Exposure Lamp	The number of exposure lamp's lighting points has increased from 7 to 9.	To decrease white bands on copies caused by the exposure lamp's lighting points.
2	Infra-red Filter	The thickness of the infra-red filter has increased from 0.8 mm to 1.0 mm.	To achieve better copy quality for originals containing infra-red radiance. (prevents black areas from becoming reddish)
3	2nd/3rd Mirrors	A heavier stabilizer has been installed on the 2nd/3rd mirrors.	To decrease scanner banding to achieve better results for auto letter/photo separation.
4	Exposure Glass	A more high-conductivity glass is used.	To decrease the possibility of the exposure glass becoming dirty with dust particles.
5	Reflectors	Reflectivity has increased because of surface improvements.	To decrease the temperature around the optics cavity due to less power to the exposure lamp.

No.	Item	Contents	Details
6	Optics Cooling Fan Filter	The filter material has changed. It is easier to replace the filter.	The air flow has improved to reduce temperature rises in the optics cavity. For replacement, see section 5 for details.
Image Processing			
1	RGB Filter	The RGB filter coefficient for each copy mode (letter/photo) has been changed.	To improve gradation and reproduction quality.
2	Color Correction	New matrixes and masking coefficients have been added to match the new copy modes.	See 4.4 in section 2 for details.
3	Image Separation IC	The image separation IC has been changed.	To reduce photo/letter image separation errors in auto detect mode.
Laser Exposure			
1	Drum Mirror	A heavier stabilizer has been installed on the Drum mirrors.	To reduce the occurrence of banding on copies.
Development			
1	Development Sleeve Roller	The sleeve rollers have been changed to a sand-blast type.	To eliminate the 1.25 mm horizontal lines in halftone image areas caused by the grooves on the sleeve roller.
Toner Tank			
1	Toner Tank	A toner end sensor has been added for each color.	See 6.2 in section 2 for details.
		The green lever has been eliminated.	See 6.2 in section 2 for details.
		A toner tank detection mechanism has been added. When the tank is pulled out, it is disconnected electrically from the main body.	See 6.2 in section 2 for details.
Transfer Belt			
1	Transfer Belt Bias	The number of threshold levels that decide transfer belt bias depending on environmental conditions has changed from 2 to 4.	See 7.1 in section 2 for details.
2	Transfer Belt Cleaning	The belt lubricant mechanism has changed to apply lubricant directly to the transfer belt.	To prevent partial blanking of lines (due to incomplete toner transfer) from appearing on copies. See 7.2 in section 2 for details.

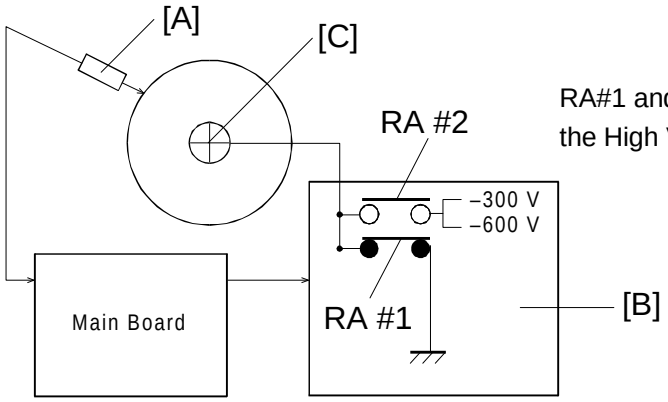
No.	Item	Contents	Details
Transfer Roller			
1	Transfer Belt/Roller Heater	The transfer roller heater has been newly added to keep the temperature around the transfer roller unit at 20°C.	See 8.1 in section 2 for details.
2	Transfer Roller	The material of the transfer roller has been changed.	To improve transfer efficiency.
3	Transfer Roller Bias	The number of threshold levels that decide transfer roller bias depending on environmental conditions has been changed from 2 to 4.	See 8.2 in section 2 for details.
		Transfer roller bias settings for duplex copying have been newly added.	See 8.2 in section 2 for details.
4	Paper Discharge Plate	The installed angle of the paper discharge plate has changed.	To prevent toner scatter from appearing around solid areas in duplex mode. See 8.4 in section 2 for details.
5	Paper Discharge Plate Output	The output of the paper discharge plate changes depending on the copy paper.	See 8.4 in section 2 for details.
6	Transfer Roller Cleaning	The roller lubricant mechanism has been newly added.	See 8.3 in section 2 for details.
Fusing Unit			
1	Hot Roller	The material of the hot roller has been changed.	To make it suitable for duplex copying.
2	Pressure Roller	The material of the pressure roller has been changed.	To make it suitable for duplex copying.
3	Pressure Roller Cleaning	The pressure roller cleaning mechanism has been newly added.	See 9.1 in section 2 for details.
Paper Feed			
1	2nd Paper Feed Station	The 2nd paper feed station has been changed to the universal tray type.	To meet customers' requests.
Operation Panel			
1	LCD (Liquid Crystal Display)	The LCD has been changed to a 640 x 480 dot type. A172: Full Color Display A199: B/W Display	For easier operation and editing.

No.	Item	Contents	Details
2	Operation Panel Control	The operation panel control board has been newly added. The main control board no longer controls the operation panel.	—
3	Operation Panel Self Diagnostic Mode	The operation panel self diagnostics mode has been newly added.	For easier servicing of the machine.
Others			
1	Drum Drive	The drum drive mechanism has been changed from a series of gears to a timing belt system.	Banding on copies are reduced. See 3.3 in section 2 for details.
2	Copier Rear Frame	The thickness of the rear frame has changed from 1.6 mm to 2.0 mm	Banding on copies are reduced.
3	Fusing exhaust ozone filter	This filter has been eliminated.	Because the ozone amount has been decreased due to the new charge corona unit.
Options			
1	DJF (A610)	See the DJF section for details.	—
2	15-Bin Sorter (A322)	See the Sorter section for details.	—
3	Holder (A702-18)	The color of the exterior covers has been changed.	—
4	Film Projector Unit (A718)	See the Film Projector Unit section for details.	—

2. PROCESS CONTROL

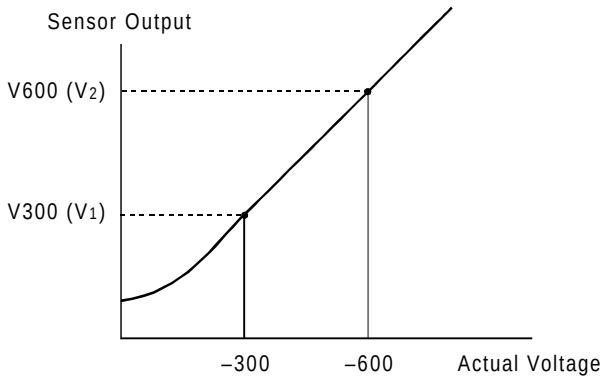
2.1 LATENT IMAGE CONTROL

2.1.1 DRUM POTENTIAL SENSOR CALIBRATION



RA#1 and RA #2 are packed in RL1 on the High Voltage Supply Board – B.

A172D507.wmf



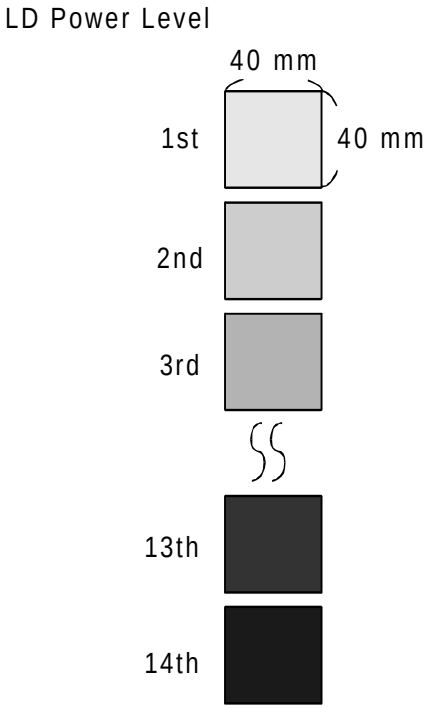
A172D508.wmf

The drum potential sensor [A] output is calibrated during the process control self check.

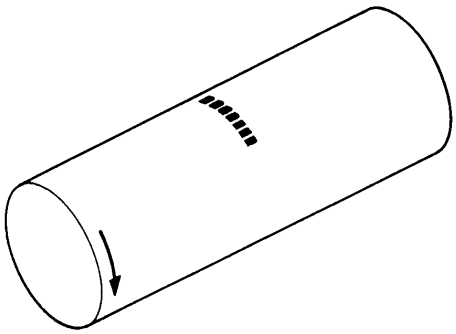
The High Voltage Supply Board - B [B] has two relay contacts. Usually RA #1 grounds the drum. However, during the self check, the main CPU turns RA #2 on and RA #1 off and applies the test voltage to the drum shaft [C]. In this condition, the drum is isolated from the ground (floating).

By measuring the output of the drum potential sensor when –300 V (V_{300}) or –600 V (V_{600}) are applied to the drum, the sensor output is calibrated automatically. (The machine can now determine the actual drum potential from the potential sensor output.) Using -300 and -600 V results in a more accurate calibration of the sensor, since the voltage applied to the supply board is much closer to the actual value, which is –450 V for V_B (Development bias) during the process control self check.

2.1.2 GRADATION PATTERN DETECTION



A172D509.wmf



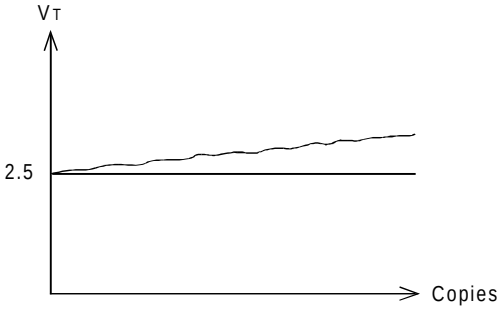
A172D510.img

A latent image of a 14-grade gradation pattern is created for each color (Bk, C, M, Y) by changing the LD input current.

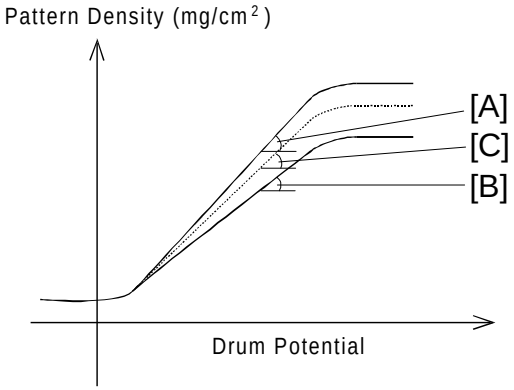
By creating 14 grades, the machine can achieve a more precise development gamma factor, resulting in a more reliable pointer control.

2.2 TONER DENSITY CONTROL

2.2.1 VCNT CORRECTION



A172D511.wmf



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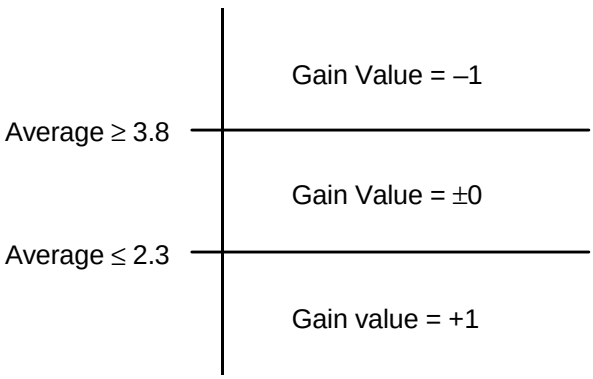


A172D513.wmf

Even if the toner concentration is constant, the toner density sensor output gradually increases after new developer is installed because of developer characteristics. Because of this, the machine believes that the amount of toner in the developer has reduced. This causes the machine to increase the toner concentration because the machine controls the toner concentration so that VT stays constant.

To compensate for this, the VCNT gain is corrected by using the development gamma curve made from the 14-grade pattern during process control self check.

The present gamma curve [A] and the previous gamma curve [B] are compared, and the average [C] is calculated. As shown in the diagram, the gain is decreased by 1 when the average gradient is 3.8 or more. The maximum compensation value is –16.

Because of this new VCNT correction system, the VCNT correction previously performed every 200 copies is no longer necessary. Also, due to the use of the average value, over-reduction of the gain is avoided.

2.2.2 FORCED TONER CONSUMPTION MECHANISM

For customers that mainly make copies other than full color copies, the toners other than the selected colors are not used. For these toners, the amount of toner inside the development unit will gradually increase every 50 copies, since toner agitation is performed at this interval, and some toner is added at this time (see section 6.1). If this condition continues, toner scattering and toner density control failure may occur.

To compensate for this, along with the transport screw gear modification, the machine checks the output of each TD sensor during the process control self check. If the machine detects $V_{REF}-V_T \geq 0.3$ V, it determines that there is too much toner inside the development unit and makes a pattern across the whole width of the drum to forcibly consume some toner.

2.2.3 FORCED TONER SUPPLY MECHANISM

When the machine makes consecutive copies that have a large portion of solid image areas, toner supply and agitation from the toner tank cannot keep up with the toner consumption speed, causing lighter copies, toner scatter, and related SC codes to appear.

To compensate for this, the output of each TD sensor is checked every copy. When the machine detects $V_T-V_{REF} \geq 0.5$ V five times consecutively, it determines that the amount of toner in the development unit is low. At this moment, the copy job is interrupted, and toner is fed into the development unit forcibly. After forced supply, the machine resumes the copy job.

3. DRUM UNIT

3.1 DRUM CHARGE

This copier uses a single corona wire scorotron system to charge the drum.

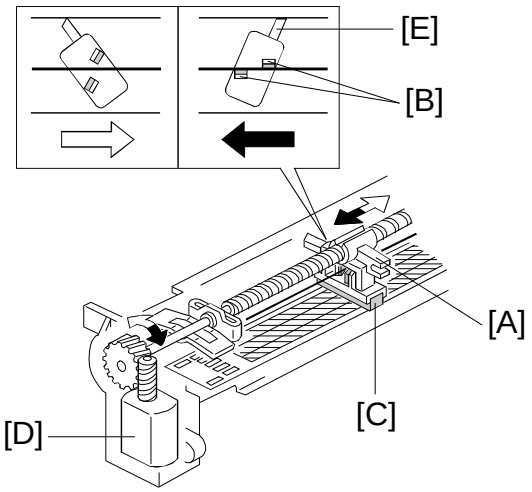
The corona wire applies a negative charge to the drum surface. The striped stainless steel grid plate makes the corona charge uniform and controls the negative charge on the drum surface to -650 V (standard) by applying a negative grid bias voltage.

The high voltage supply board –C/G gives a constant corona current (–450 μA) to the corona wire, and controls the grid voltage (based on the results of process control) to maintain proper image density. Grid voltage is controlled to match changing factors such as a dirty grid plate, dirty charge corona casing, and OPC chargeability.

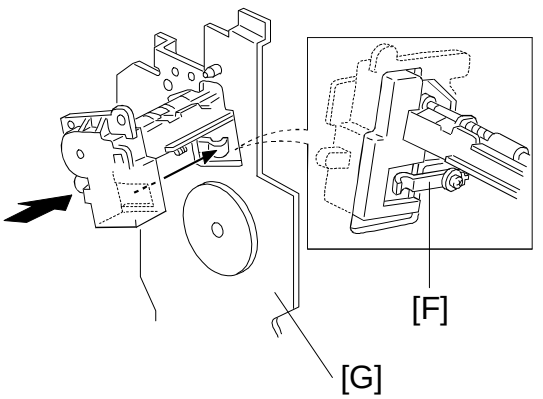
The use of the single wire scorotron system has the following advantages.

- The amount of corrosive gas (O_3, NO_X) is reduced due to the decrease in total current.
- The life time of the drum is increased due to the decrease in the amount of corosive gas.
- Uneven charge problems are alleviated due to the increase of the amount of current per meter of the corona wire.

3.2 DRUM CHARGE CORONA WIRE/GRID CLEANING



A172D524.wmf



A172D525.wmf

The flow of air around the charge corona unit may deposit toner particles and paper dust on the corona wire or corona grid plate. These particles may interfere with charging and cause uneven charge on the drum.

The wire cleaner [A], which consists of the wire cleaner pads [B] and the grid plate sponge [C], automatically cleans the wire and the inside of the grid plate to prevent such problems from appearing.

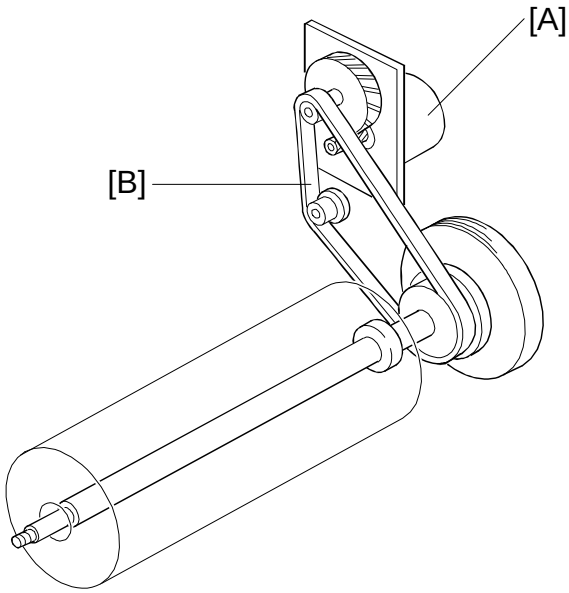
The wire cleaner is driven by a dc motor. Normally the cleaner is located at the front end (this is home position). Whenever the main switch is turned on while the hot roller temperature is below 80°C (before process control), the wire cleaner motor [D] turns on to bring the wire cleaner to the rear end of the corona unit and back to the home position. The corona wire and the inside of the grid plate are cleaned at the same time. This procedure can be manually performed with an SP mode as well (<2> SP Test, page 4).

When the cleaner moves from the home position to the rear position (the white arrow in the illustration), only the grid plate is cleaned since the grid plate sponge is always in contact. When coming back, the rib [E] on the cleaner is forced by the opening in the corona casing, and the wire cleaner pads contact the corona wire.

There are no home position or return position sensors. The wire cleaner drive board at the back of the machine monitors the current applied to the motor. When the wire cleaner reaches the end, it is stopped and the motor is locked. At this time, the current of the motor slightly increases and the drive board detects that it is time to rotate the motor in reverse.

Also, a grounding plate [F] is installed on the back side of the drum stay [G] to reduce the electrical noise generated from the cleaner motor.

3.3 DRIVE MECHANISM

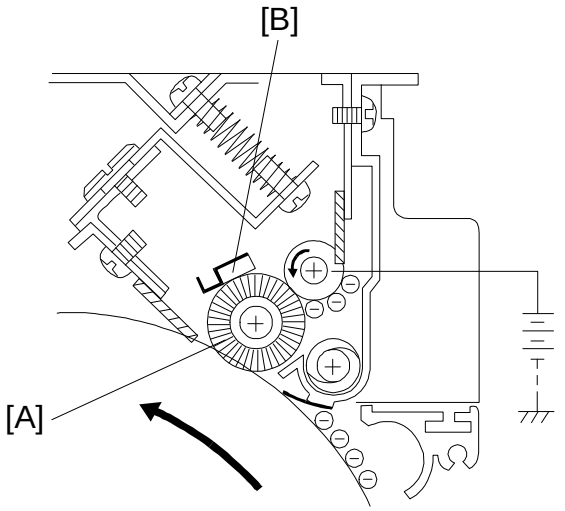


A172D500.wmf

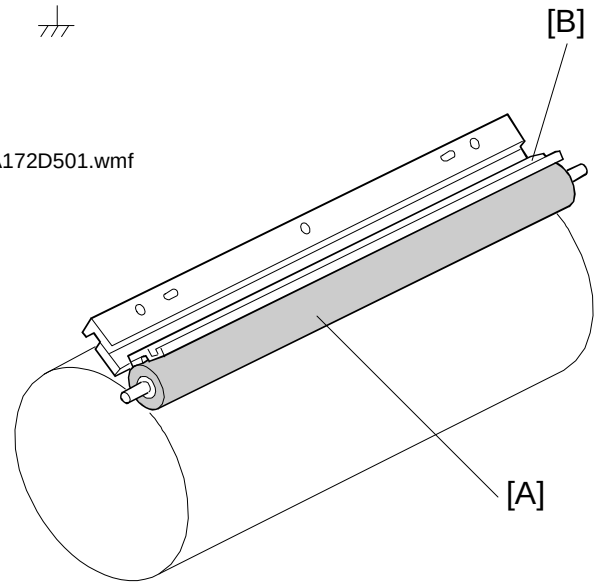
The drum is driven by the drum motor [A] through a timing belt [B].

By the use of a timing belt system, banding on copies are reduced due to the lower mechanical load.

3.4 DRUM LUBRICATION MECHANISM



A172D501.wmf



A172D502.wmf

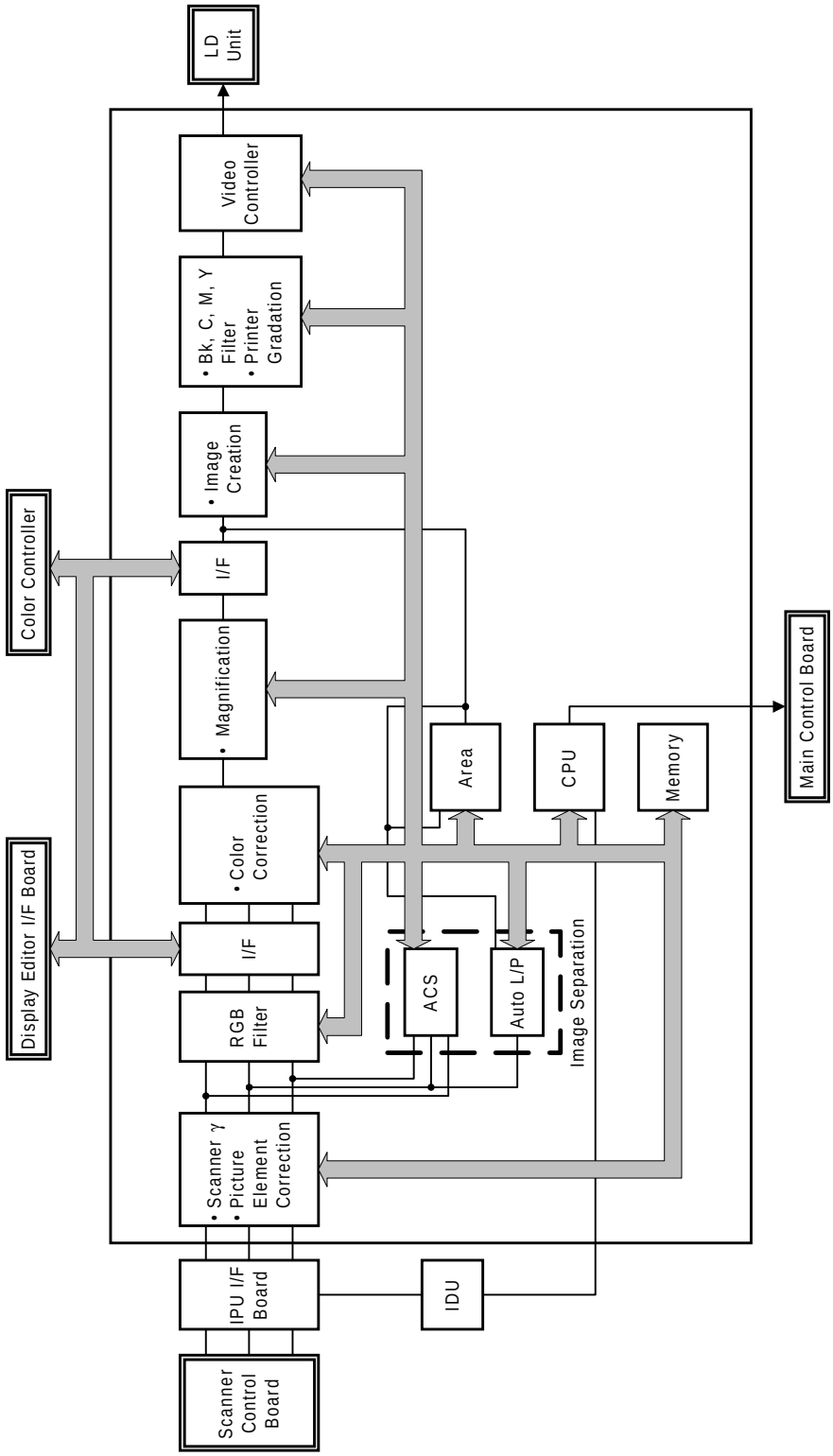
While the drum rotates, the cleaning brush [A] distributes lubricant from the drum lubricant bar [B] to the surface of the drum.

This mechanism improves the copy quality, especially for letter areas in full color mode, since it helps the toner transfer to the transfer belt. It also improves the efficiency of drum cleaning.

To apply the lubricant to the surface of the drum evenly, a straight-bristle type is used for the drum cleaning brush.

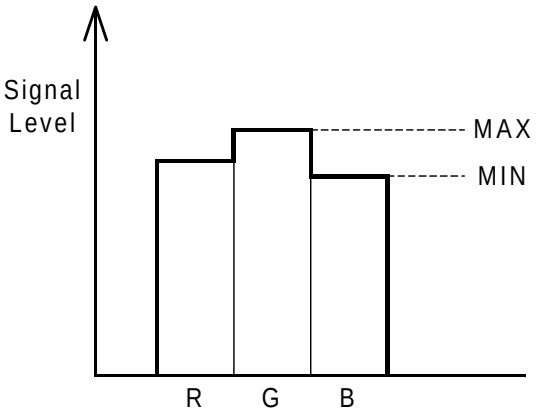
4. IMAGE PROCESSING

4.1 IPU SECTION BLOCK DIAGRAM



A172D535.wmf

4.2 ACS (AUTO COLOR SELECTION)



*MIN: Also known as "RGB Common Data"

A172D526.wmf

In Auto Color Selection mode, the Black Copy mode or Full Color mode is automatically selected to match the original image. During the 1st scanning cycle, the latent image is developed with amount of black toner according to the corrected R/G/B video signals. If the original does not have any color area, the 2nd scanning is aborted, and the developed image is transferred from the transfer belt to copy paper. Then the black and white copy comes out. If the original has a color area, copying resumes in the full color copy mode (4 scans).

To recognize if the original has a color area or not, the R/G/B video signals are compared. If the maximum difference among R/G/B signal levels (MAX-MIN in the above diagram.) is within a certain range, the original is considered to be black and white.

This range can be changed by the user.

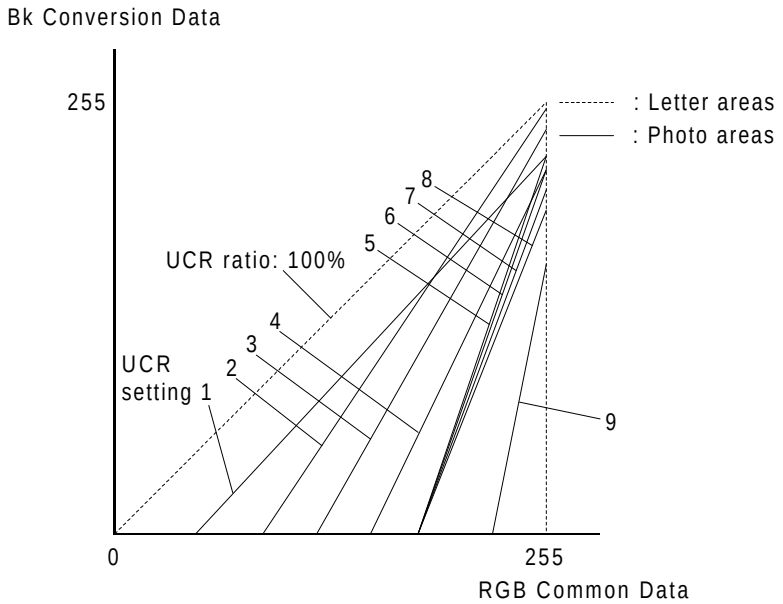
Black: The range is wider
Color: The range is narrower

Also, the user can select either B/W Priority or Color Priority, to reproduce the B/W areas or Color areas well, when the ACS mode is selected.

*Factory Setting = Color Priority

When Color Priority is selected

<ACS: Color Priority>



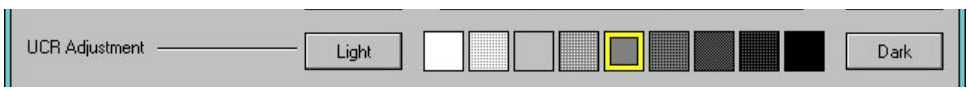
A172D527.wmf

a) Letter areas
The UCR ratio is set to 100% to reproduce the letter areas well. Black toner is always used if RGB Common Data is greater than zero.

b) Photo areas
In photo areas, black toner is not used until RGB Common Data reaches a certain value, which depends on the UCR adjustment setting (see below). This can be one of 9 settings as shown in the above illustration.

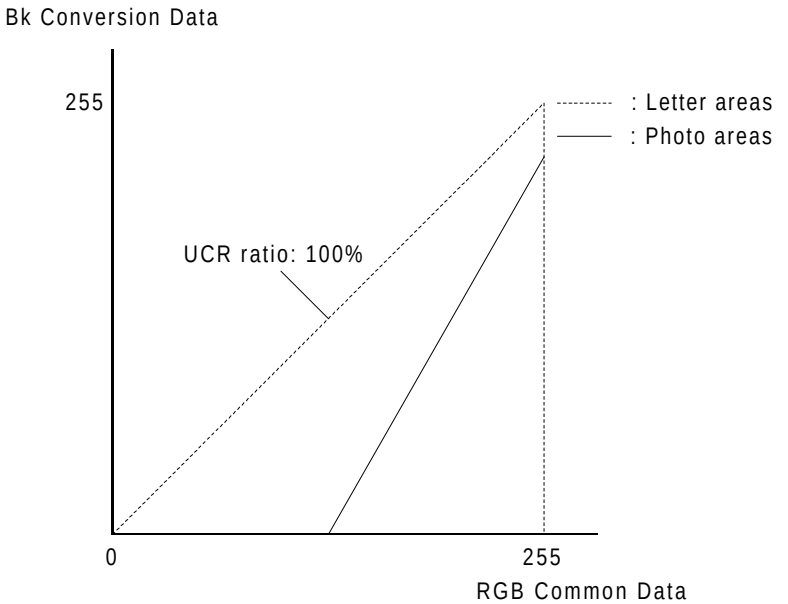
Also, the UCR ratio changes with image density. The steeper the gradient in the above graph, the faster the UCR ratio increases with image density (as RGB Common Data increases).

The UCR range for the photo areas can be changed over 9 levels by the user (Image Adjustment: UCR Adjustment) to get the best color reproduction.



When B/W Priority is selected

<ACS: B/W Priority>

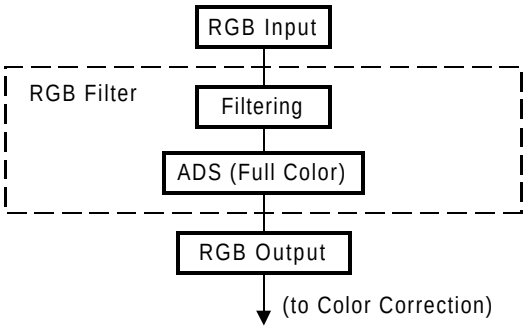


A172D528.wmf

a) Letter areas
The UCR (Under Color Removal) ratio is set to 100% to reproduce the letter areas well.

b) Photo area
The UCR ratio is set to a higher value than for the Color Priority default setting (level 5), so that low image density areas of B/W originals can be reproduced well.

4.3 RGB FILTER



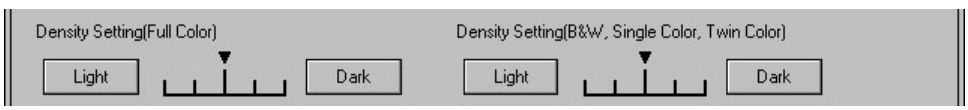
A172D529.wmf

4.3.1 Filtering

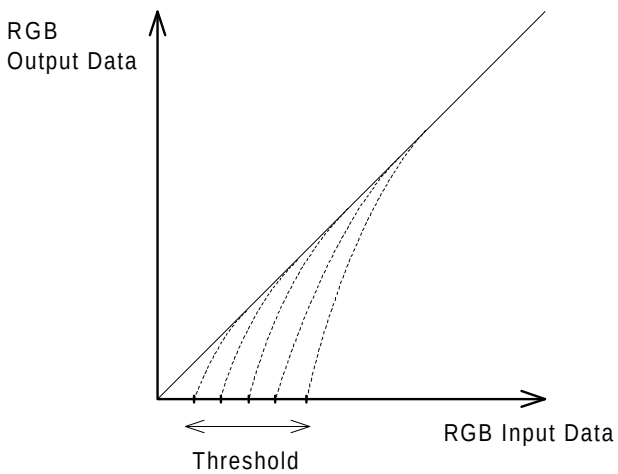
To improve the image reproduction, the appropriate filter coefficients are applied to the R/B/G video signals, depending on the selected image modes (letter/photo) or the result of Auto Letter/Photo separation.

4.3.2 Auto Image Density Control (Full Color)

This mode prevents the background of an original from appearing on copies. The Auto Image Density Level can be changed using the User Tools. (There are 5 levels.)

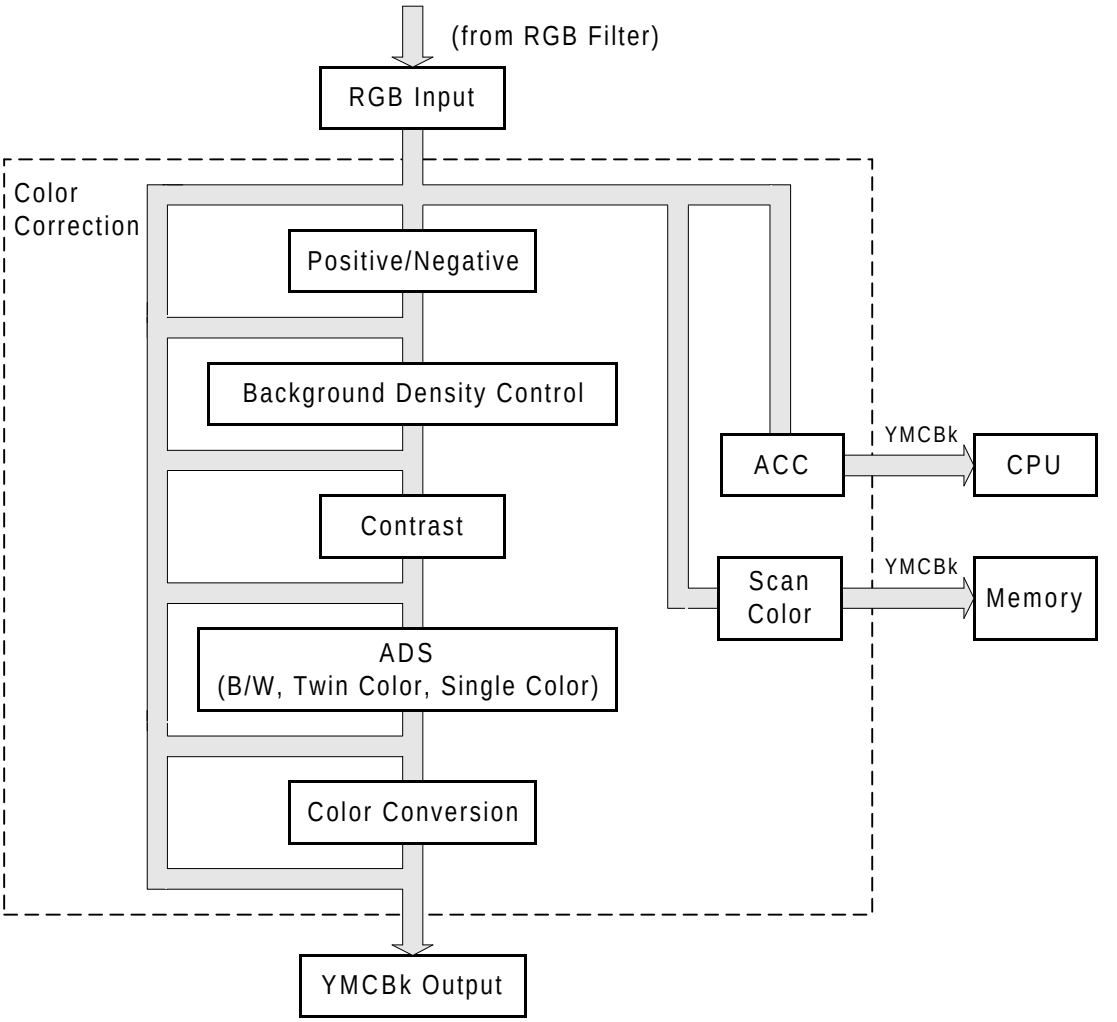


When Full Color mode and Auto Image Density mode are selected, video signals corresponding to the background are detected and their output level is set to zero. The threshold for detecting the background can be changed over 5 levels using the User Tools.



A172D533.wmf

4.4 COLOR CORRECTION



A172D541.wmf

4.4.1 Image Modes

RGB video signals are converted to YMCBk video signals using a color conversion table.

A172D530.wmf

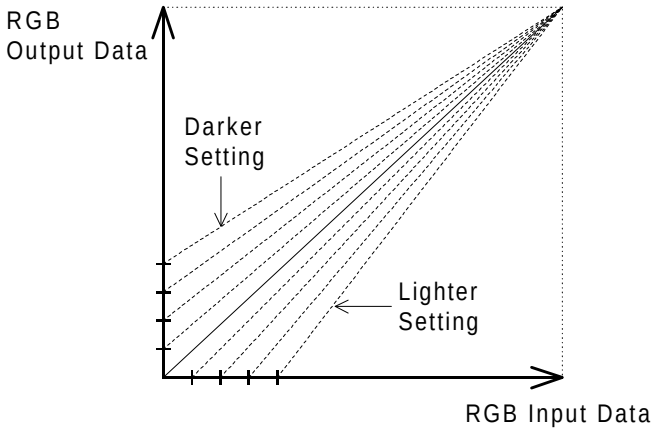
a) Printed Photo/Glossy Photo mode
A suitable color conversion table for Printed Photo or Glossy Photo mode is applied to improve the reproduction of such originals.

b) Copied Photo/Map mode
A suitable color conversion table for Copied Photo or Map mode is applied to improve the reproduction of such originals.

c) Auto Letter/Photo mode
At the factory setting, Printed Photo mode is applied for the photo areas detected by the Auto Letter/Photo mode.
The user can change this setting so that either of the following modes will be applied for photo areas.

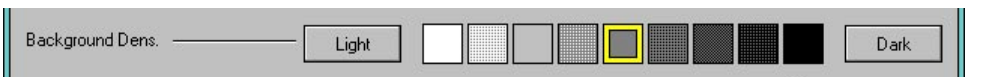
- Printed Photo mode
- Glossy Photo mode
- Copied Photo mode

4.4.2 Background Density Control



A172D531.wmf

There a 9 levels of background density controls.

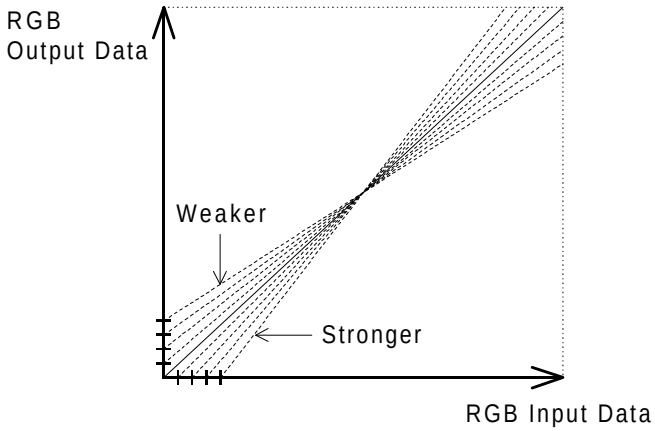


a) Lighter setting
Small effect on the high image density areas, but the low image density areas are reproduced lighter or erased.

b) Darker setting
Small effect on the high image density areas, but the low image density areas are reproduced darker.

When combining the Full Color mode and Auto Image Density mode, the background density may be reproduced lighter or erased. To reproduce the color background well, it is necessary not to use Auto Image Density mode but to adjust the background density control to a darker setting.

4.4.3 Contrast



A172D532.wmf

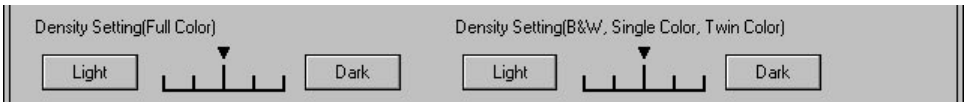
Contrast between light and dark areas of the image can be adjusted. There are over 9 levels.

a) Strong setting
The density of the dark image areas is increased and the density of the light image areas is decreased.

b) Weaker setting
The density of the dark image areas is decreased and the density of the light image areas is increased.

4.4.4 Auto Image Density Control (B/W, Twin Color, Single Color)

This mode prevents the background of an original from appearing on copies. The Auto Image Density Level can be changed using the User Tools. (There are 5 levels.)

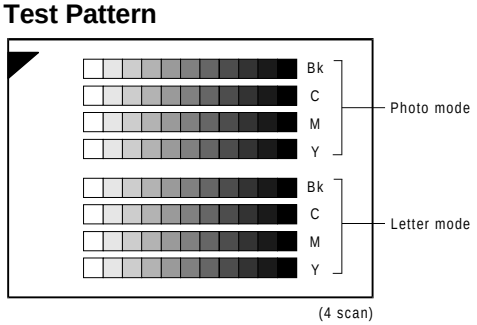


When B/W, Single Color, or Twin Color and Auto Image Density mode are selected, this function combines the Background Density Control and Contrast as shown in the following table.

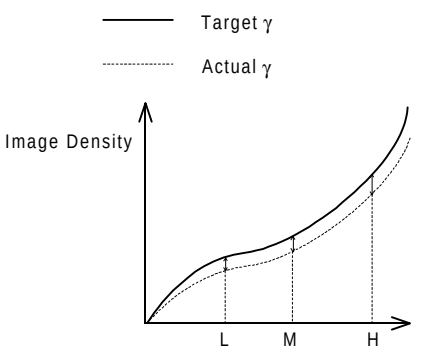
ADS Level		Background Density Control	Contrast
↑	**+2**	–1	0
Dark	**+1**	–1	+1
Standard	**0**	–1	+2
Light	**–1**	–2	+2
↓	**–2**	–2	+3

4.5 ACC (AUTO COLOR CALIBRATION)

Test Pattern



A172D534.wmf



A172D540.wmf

Auto Color Calibration can be performed using the User Tools.

A test pattern, including the patterns for Letter mode and Photo mode, will be printed first. The user then scans the test pattern. The resulting printer gamma curve depends on the results of scanning the test pattern.

There are adjustment tables for L, M, H, and ID MAX values stored in the machine. The machine applies these to approximate the actual curve to the target curve as closely as possible.

If needed, the printer gamma curve can be adjusted further manually in the SP mode. (See section 5, Color Balance Adjustment)

Also, a printer gamma setting can be stored in memory (temporarily or permanently) and curve can be recalled. When the ACC is performed, the current printer gamma setting will be automatically stored in the temporary memory, which can be recalled after the ACC is performed. (See Section 4, *Service Tables*, *SP Table*.)

4.6 YMCBk FILTER

In addition to the RGB filter, the most suitable software filter is applied to YMCBk video signals to improve the image reproduction.

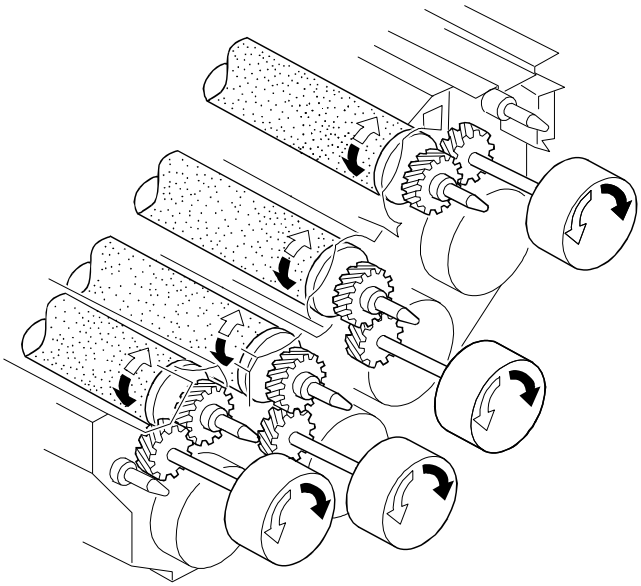
- High Contrast filter (emphasizing edges)
- Smoothing filter

		Soft (Smoothing) ←			Standard	→ Sharp (Emphasizing Edges)		
Setting		**1**	**2**	**3**	**4**	**5**	**6**	**7**
Applied Filter Table	**Letter mode**	1	2	3	4	5	6	7
	Photo mode	0	1	2	3	4	5	6

The filter can be selected by the user by adjusting the Sharp/Soft level (Image Adjustment).

5. DEVELOPMENT

5.1 DEVELOPMENT SLEEVE CLEANING



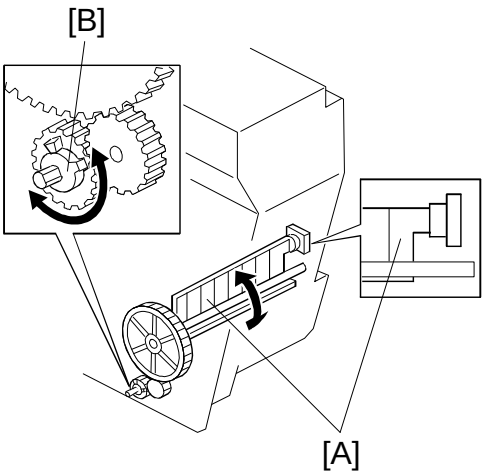
A172D506.wmf

To achieve a faster CPM for black and white originals when copying 1 to 1 or using Auto Color Select (ACS) mode, the development sleeve cleaning mode previously performed for every original is now performed periodically.

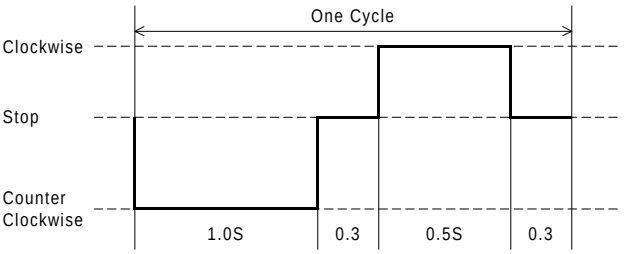
For A4 or smaller size originals, a maximum of 40 black and white copies can be made without the machine stopping to perform development sleeve cleaning (20 copies for originals larger than A4 size). If a color original is detected in between when using ACS mode, the cleaning mode is executed, and the original counter will be reset. This setting can be changed with SP mode.

6. TONER TANK

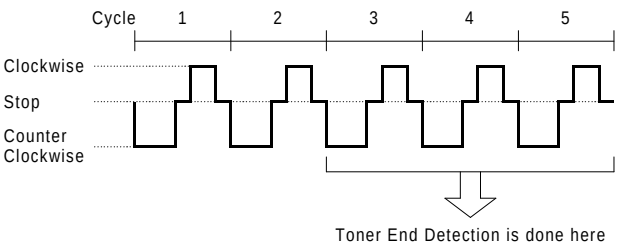
6.1 TONER AGITATION



A172D503.wmf



A172D504.wmf



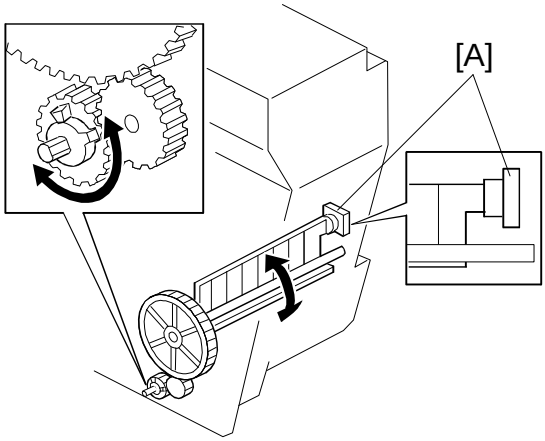
A172D505.wmf

Under the following conditions, the toner agitator [A] inside each toner tank rotates to agitate the toner inside the toner tank.

- Whenever the main switch is turned on while the hot roller temperature is below 110°C.
- After a multi-copy job is completed and more than 50 copies have been made since the last toner agitation.
- When the optional ARDF is used, the machine stops the copy cycle after 150 copies have been made since the last toner agitation.
- When the toner tank is pushed in during a near toner end or toner end condition.

As shown above, one cycle of this agitation consists of rotating in both directions, and is performed for five consecutive cycles.
In order to prevent unnecessary toner from entering the development unit during agitation, the transport screw gear [B] has some play before rotation is transmitted to the transport screw.

6.2 TONER END DETECTION



A172D503.wmf

Four toner end sensors [A] (which are piezoelectric) are installed on the toner tank to monitor the near end condition for each color toner. Toner end detection is performed during toner agitation, and the detection sequence is as follows.

1. Near Toner End Condition
   The machine starts sampling the output of the toner end sensor every 0.1 second during the last three cycles of the toner agitation process (see the previous page). If a no toner condition is detected for 90% of the samples, the machine enters the near toner end condition.

2. Toner End Condition
   When a near toner end condition is detected, a total of 30 copies can be made using the toner for which the near end condition was detected. After this, the machine enters the toner end condition and copying using that toner is disabled.

3. Toner End Recovery
   When the front door is opened and the toner tank rails are pulled out and in, the machine starts to perform the toner end recovery procedure. The sequence and the recovery condition is the same as for the near toner end condition detection.

If the toner end condition is not cleared, copying using that particular color toner is disabled. This prevents the customer from clearing the near end or toner end condition by simply opening and closing the front cover or turning the main switch off and on.

The green lever which was previously installed to prevent toner from flowing into the development unit has been eliminated, due to the change in the toner end detection mechanism.

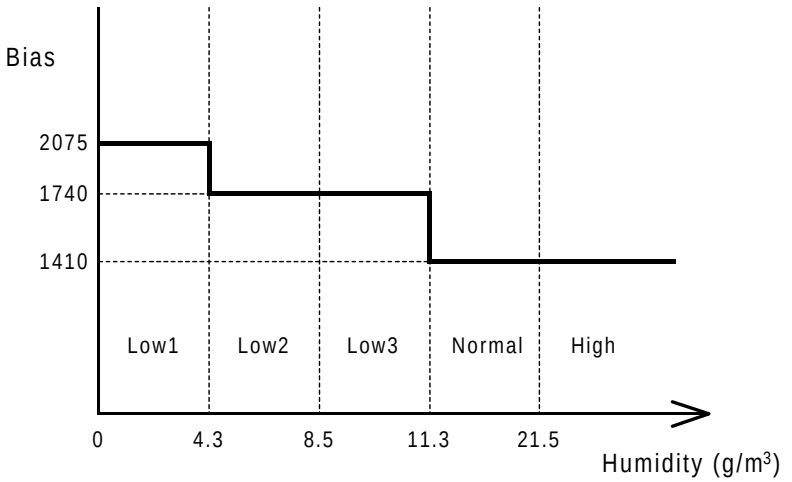
7. TRANSFER BELT UNIT

7.1 TRANSFER BELT BIAS

Transfer Belt Bias (Face Side: Normal Humidity)

		Copy Mode			
		1C	**2C**	**3C**	**4C**
Dev. Cycle	**1st**	1410	1410	1410	1410
	2nd		1490	1490	1490
	3rd			1575	1575
	4th				1660

Transfer Belt Bias Depending on Humidity Range (1C Mode: Face Side)



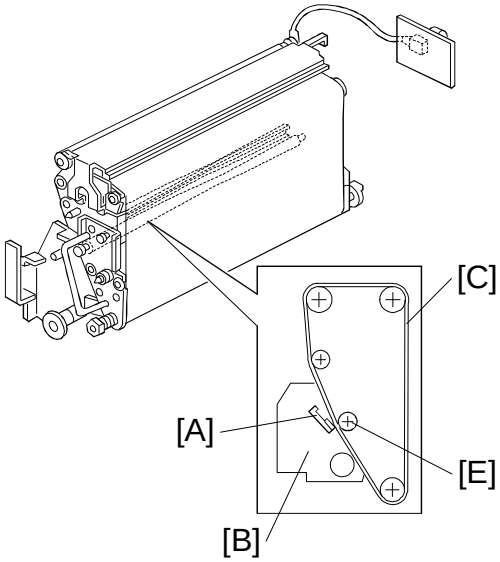
A172D514.wmf

This machine changes the transfer belt bias voltage for every mode and every copy cycle.

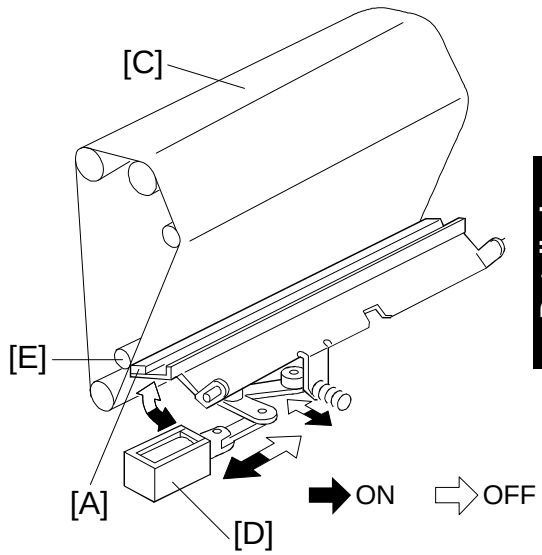
For 1C copy mode, which is more influenced by environmental conditions, the transfer belt bias output is divided into five ranges by four threshold values (as mentioned in the table above) and is determined by the output of the humidity sensor. Only three different bias settings are present as the factory setting for each environment.

The transfer belt bias voltage data can be monitored in the SP Adjustment Mode P-5 and 6. These data should not be changed. For more details, see the SP Mode Section.

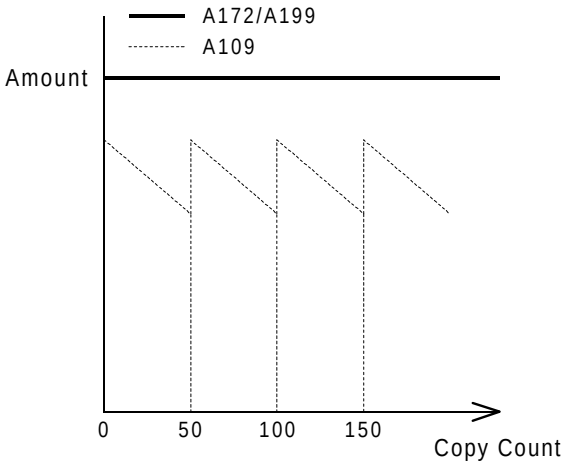
7.2 TRANSFER BELT LUBRICATION



A172D515.wmf



A172D516.wmf



A172D517.wmf

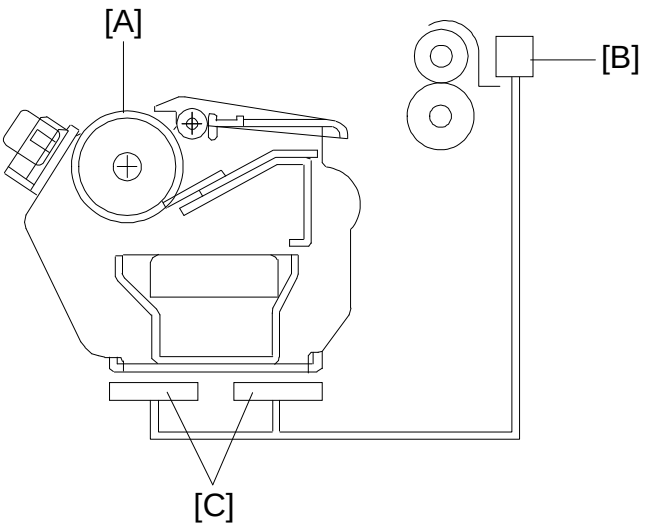
The transfer belt lubricant bar [A] on the transfer belt cleaning unit [B] applies lubricant directly to the transfer belt [C] after every copy.

The on/off movement of the transfer belt lubricant bar solenoid [D] which is synchronized with the belt cleaning mechanism, pushes the lubricant bar against the support roller [E] in the transfer belt unit.

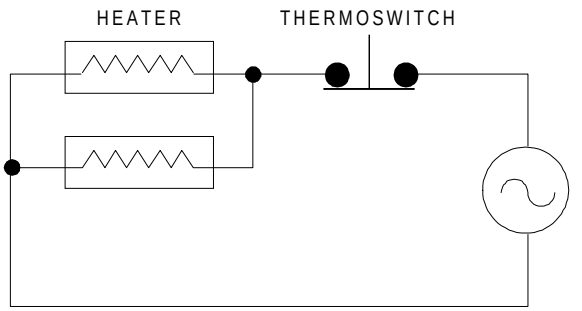
Compared with the previous model, the amount of lubricant applied to the transfer belt will stay at a constant level for every copy cycle. Because of this, copy quality problems such as partial blanking of lines (due to incomplete toner transfer) can be reduced.

8. TRANSFER ROLLER UNIT

8.1 TRANSFER BELT/ROLLER HEATER CONTROL



A172D518.wmf



A172D519.wmf

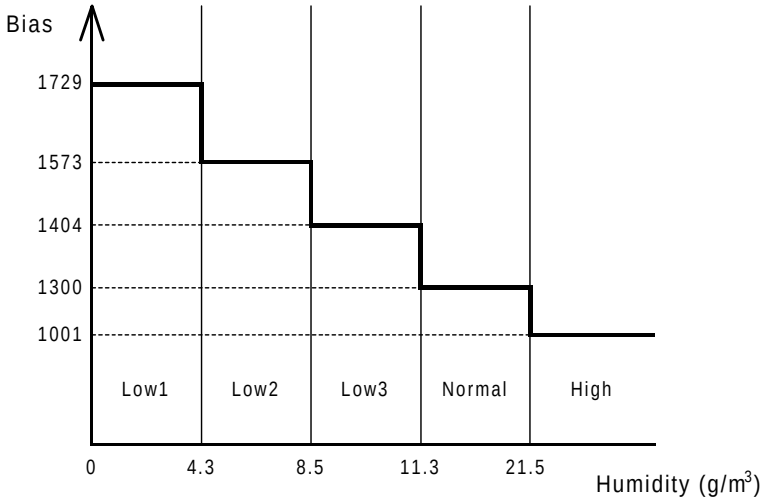
The resistance of the transfer roller [A] changes with the environment. It is especially at low temperatures.

The transfer roller thermoswitch [B] detects the temperature around the transfer roller. To keep the resistance of the transfer roller at a constant level, when the detected temperature is 20°C or less, the transfer belt/roller heaters [C] turn on until the temperature rises above 20°C.

The heaters are not turned on/off by the main switch. The heaters operate whenever the copier power cord is plugged in.

8.2 TRANSFER ROLLER BIAS

<Transfer Roller Bias Coefficient by Humidity Range (1C Mode: Face Side; Normal Paper)>



A172D520.wmf

Transfer Roller Bias (Normal Humidity)

		Paper Mode					
		Normal Paper	**Thick Paper**	**OHP: Sideways**	**OHP: Lengthwise**	**Normal: Back**	**Thick: Back**
Dev. Cycle	**1st**	1300	1200	2150	2150	1300	1450
	2nd	1600	1450	2200	2200	1800	1750
	3rd	1900	1750	2500	2500	2100	2050
	4th (Photo)	1600	1450	2200	2200	1800	1750
	4th (Letter)	1600	1450	2200	2200	1800	1750

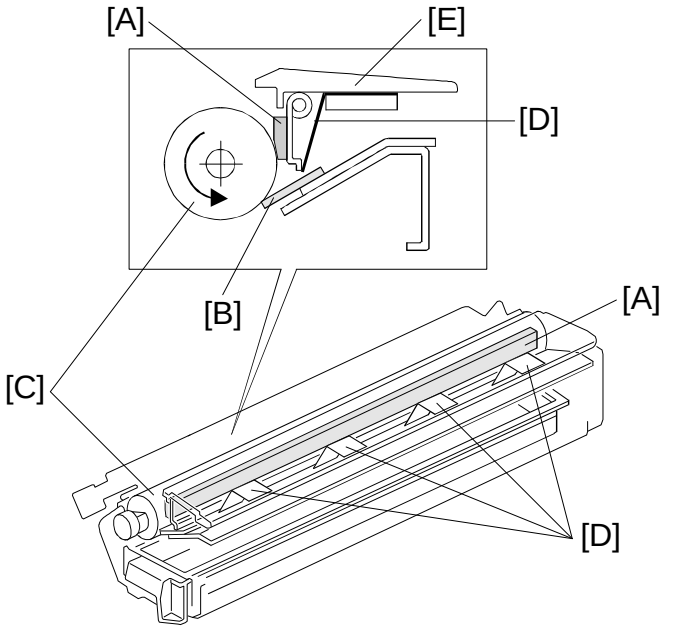
The transfer roller bias is determined by the output of the humidity sensor. It is divided into five humidity ranges by four thresholds, to compensate for changes in the humidity of surrounding areas to maintain constant copy quality.

The threshold is divided more towards the low humidity side, resulting in more sensitivity at the low humidity end. This enables more accurate shift of the transfer bias with small changes in the environment.

Also, the transfer roller bias is changed for each copy mode and the kind of copy paper currently used.

NOTE: All values shown on this page are in volts D.C..
Values shown using SP Mode <1> SP Adjustment, page 7, are in a data format.

8.3 TRANSFER ROLLER LUBRICATION



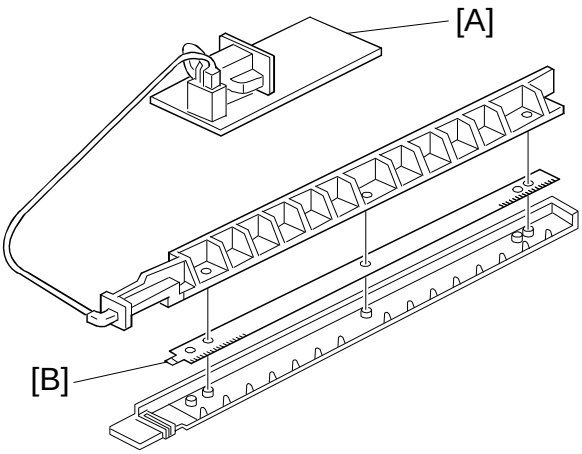
A172D539.wmf

The transfer roller lubricant bar [A] above the cleaning blade [B] continuously applies lubricant directly to the transfer roller [C].

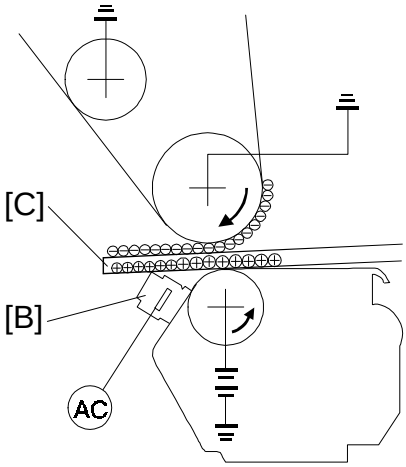
Four spring plates [D] under the transfer roller guide [E] press the lubricant bar against the transfer roller.

By applying lubricant, the cleaning efficiency of the transfer roller cleaning blade is increased, which prevents the back side of copies from becoming dirty with toner and paper dust.

8.4 PAPER DISCHARGE



A172D521.wmf



A172D522.wmf

Discharge Plate Output

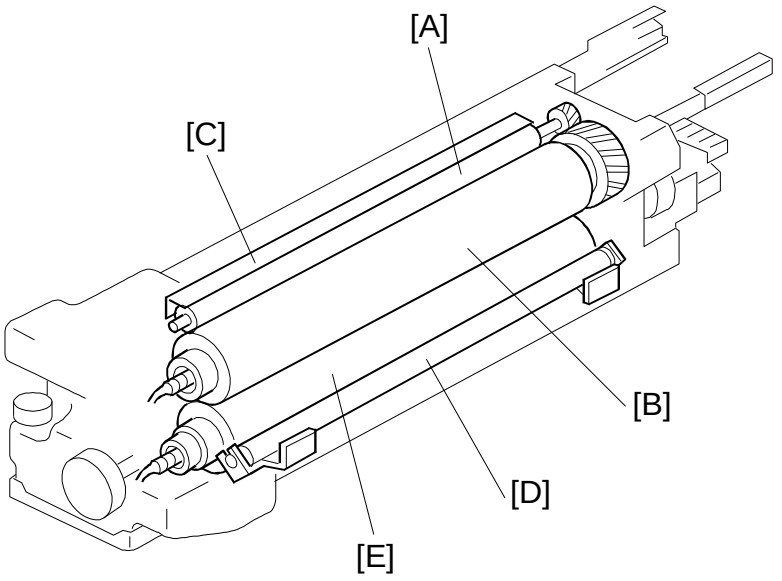
Normal Paper	Thick Paper	Duplex: Face	Duplex: Back
4000 V	3500 V	4000 V	4000 V

The high voltage supply board -D [A] applies ac voltage to the discharge plate [B]. The discharge plate removes any charge remaining on the paper [C] to separate the paper from the transfer belt.

To perform an accurate discharge, the output of the discharge plate differs with the copy mode or paper being used. For OHP mode, discharge is not performed because the OHP sheet separates from the transfer belt as a result of its stiffness.

9. FUSING UNIT

9.1 ROLLER CLEANING MECHANISM



A172D523.wmf

The cleaning roller [A], which is always in contact with the hot roller [B], collects the toner and paper dust adhering to the surface of the hot roller. The collected matter is scraped off by a stainless steel blade [C].

The pressure roller cleaning roller [D], which is always in contact with the pressure roller [E], collects the toner and paper dust adhering to the surface of the pressure roller. The pressure roller cleaning roller is driven by physical contact with the pressure roller.

The pressure roller cleaning roller prevents poor copy quality in duplex mode (face side) and dirt on the back side of copies in normal mode. It also prevents horizontal lines from appearing on the back side when making OHP sheets.

9.2 FUSING TEMPERATURE CONTROL

Each rollers are controlled at the temperature shown in the table below.

	Stand-by	During Copying					
		Normal		OHP/Thick Paper		Manual Duplex (Back Side)	
		1C	2C, 3C, 4C	1C	2C, 3C, 4C	1C	2C, 3C, 4C
Hot Roller Temp.	180	160	170	170	170	Normal:160 Thick Paper: 170	Normal:170 Thick Paper: 170
Pressure Roller Temp.	120	Hot Roller Temp. - 20				120	120

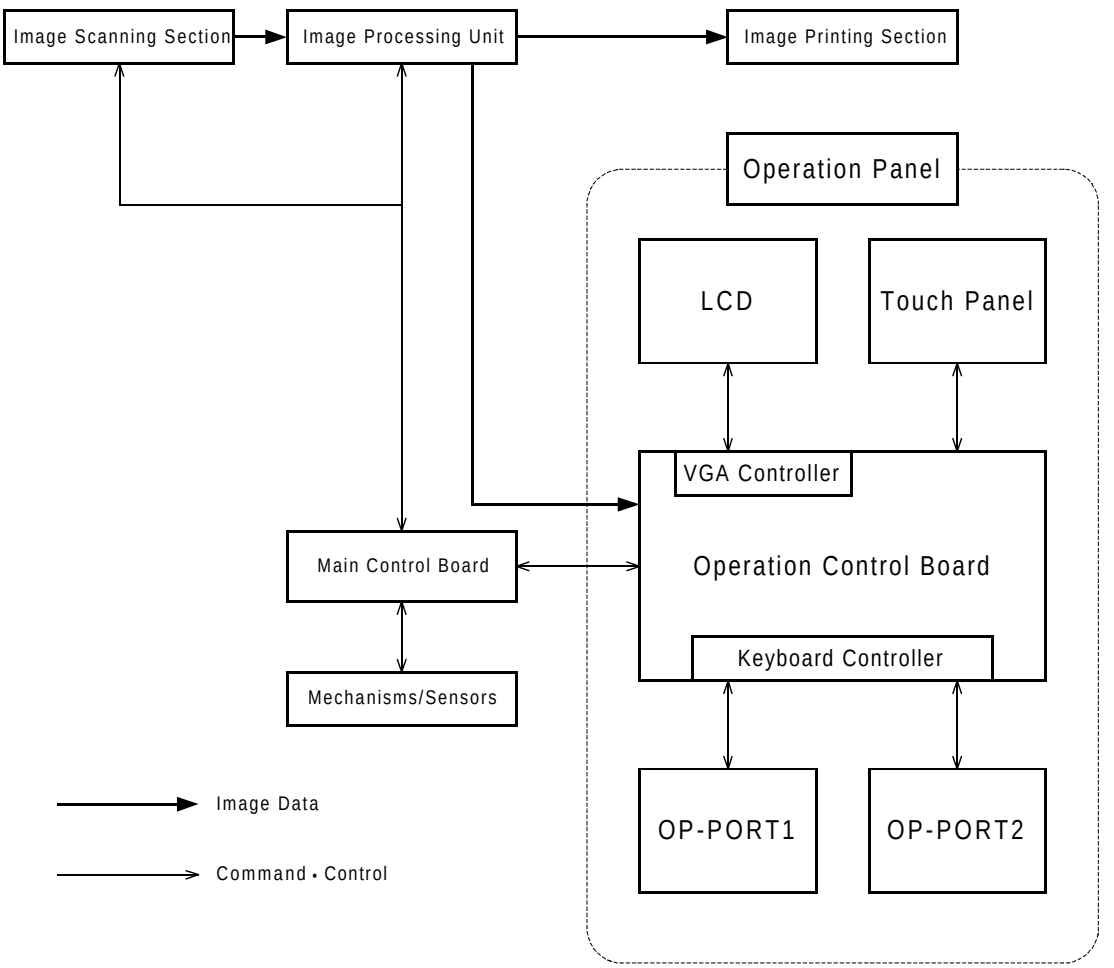
10. OPERATION PANEL

This operation panel has an LCD (640 x 480 dots). Most of the keys for functions are displayed on the LCD (Touch panel).

There are two versions of the LCD.

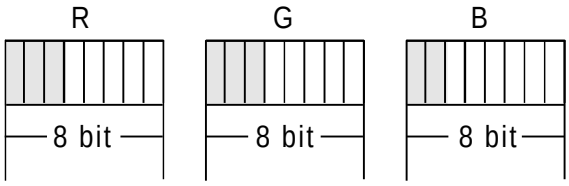
- Basic Model (A199): Black/White LCD
- Edit Model (A172): Full Color LCD + Editor Function
  *The scanned image will be displayed on the LCD in full color (256 colors in total).

10.1 OPERATION PANEL CONTROL BLOCK DIAGRAM



A172D536.wmf

10.2 OPERATION CONTROL BOARD



3 bit + 3 bit + 2 bit = 8 bit

A172D537.wmf

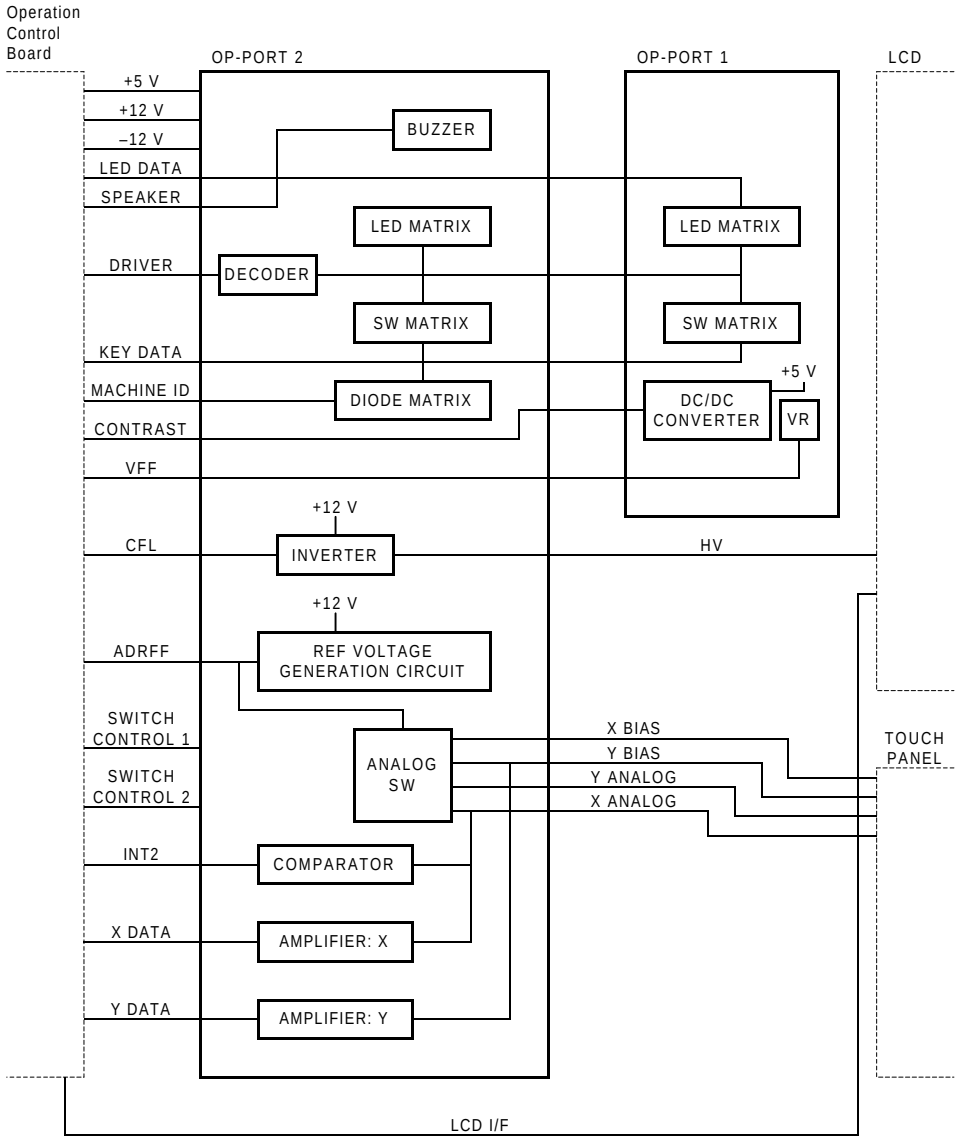
	Resolution	Enlargement Ratio
Full Size	25 dpi	100%
Enlarge 1	50 dpi	200%
Enlarge 2	67 dpi	264%
Enlarge 3	100 dpi	400%
Enlarge 4	132 dpi	528%

The Operation Control Board monitors the commands input by the user, and sends them to the Main Control Board. Also, the Operation Control Board controls the operation panel itself (Display Switching, and Display Control).

The data is sent as serial data through the optical fiber between the Operation Control Board and Main Control Board.

When in area editing mode, the Operation Control Board receives the area image data (RGB data: 8 bit) from the IPU and displays it in 256 colors on the large LCD.
As the Operation Control Board has a CPU, an Operation Panel Self-diagnostic Mode is available. (See Section 6, 3. Operation Panel Self-diagnostic Mode.)

10.3 OP-PORT



A172D538.wmf

The OP-PORT 1 & 2 control the following:

1. Switches and LED Buzzer
2. Touch detection and Touch Point detection
3. Power Supply to the LCD
4. Contrast Adjustment
5. CFL (Cold Fluorescent Lamp) Power Supply inverter function

SECTION 3

INSTALLATION

1. INSTALLATION REQUIREMENTS

1.1 ENVIRONMENT

1. Temperature Range: 10°C to 32°C (50°F to 89°F)
2. Humidity Range: 15% to 90% RH
3. Ambient Illumination: Less than 2,000 lux (Do not expose to direct sunlight.)
4. Ventilation: Minimum space 20 m^3.
   Room air should turn over at least 30 m^3/hr/person
5. Ambient Dust: Less than 0.15 mg/m^3 (4 x 10^{-6}, 4 x 10^{-6}, Oz/yd^3)
6. If the place of installation is air-conditioned or heated, do not place the machine
   a) where it will be subjected to sudden temperature changes,
   b) where it will be directly exposed to cool air from an air conditioner,
   c) where it will be directly exposed to heat from a heater.
7. Do not place the machine where it will be exposed to corrosive gasses.
8. Do not install the machine at any location over 2,000 m (6,500 feet) above sea level.
9. Place the copier on a strong and level base.
10. Do not place the machine where it may be subjected to strong vibrations.

1.2 MACHINE LEVEL

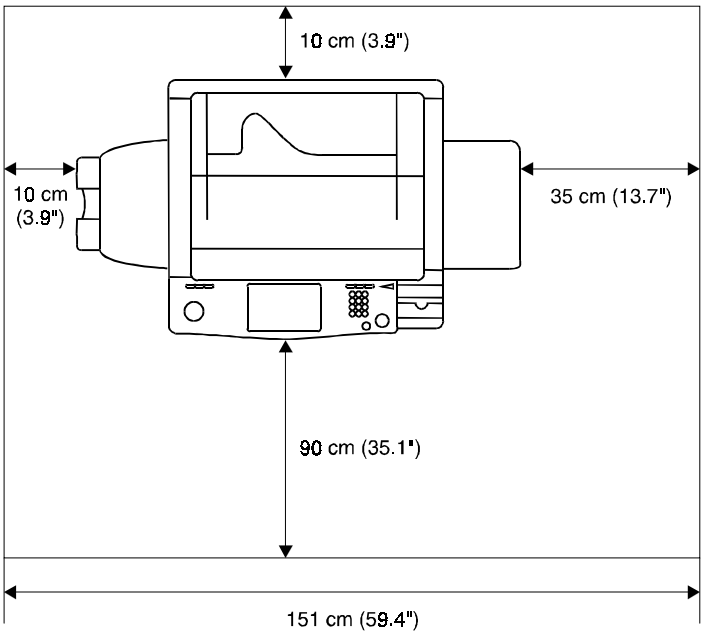
1. Front to back: Within 5 mm (0.2") of level
2. Right to left: Within 5 mm (0.2") of level

NOTE: The machine legs may be screwed up or down in order to level the machine. Set a carpenter's level on the exposure glass when you do this.

1.3 MINIMUM SPACE REQUIREMENTS

Place the copier near the power source, providing clearance as shown:

Copier only



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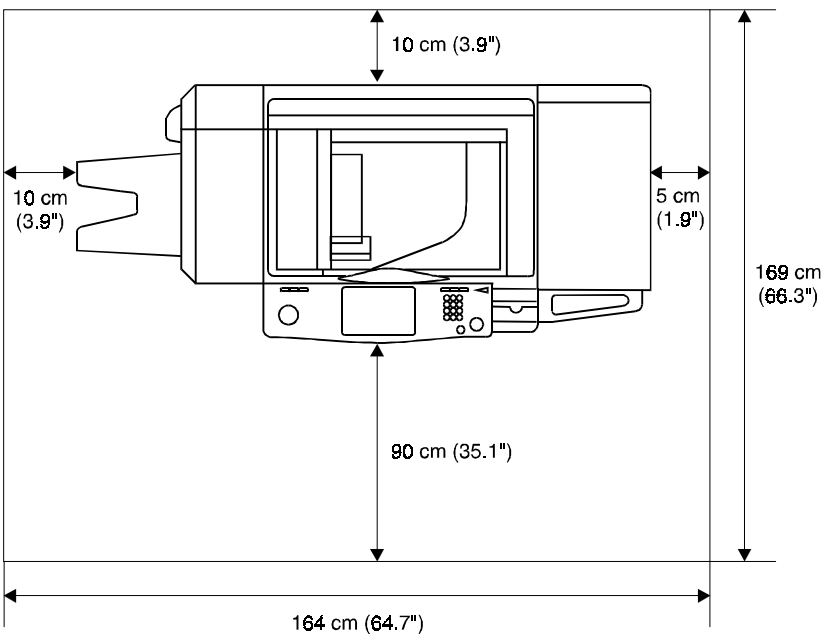
Full system



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NOTE: A space of at least 10 cm (3.9") at the rear of the machine is necessary for smooth air flow into the machine.

1.4 POWER REQUIREMENTS

1. Input voltage level: 115 V/60 Hz: More than 12 A
   220 ~ 240 V, 50/60 Hz: More than 7 A
2. Permissible voltage fluctuation: 10%
3. Do not set anything on the power cord.

NOTE: a) Make sure the plug is firmly inserted in the outlet.
b) Avoid multi-wiring.

2. COPIER (A172/A199)

2.1 ACCESSORY CHECK

Check the quality and condition of the accessories in the box against the following list:

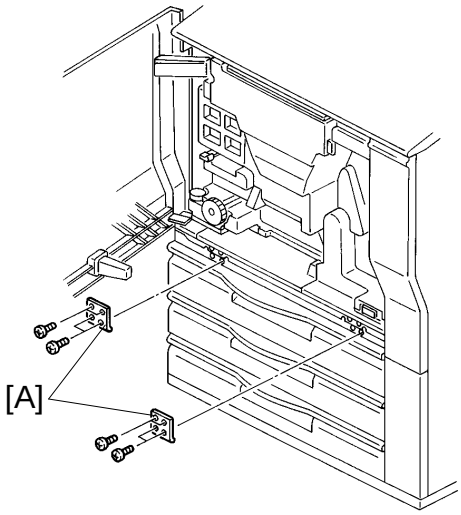
2.1.1 Copier

1. Operating Instructions (except -27 machines)..... 1
2. NECR (-17, -27, and -29 machines only) 1
3. Editor Pen..... 1
4. Copy Tray..... 1
5. Operating Instructions Holder 1
6. Total Counter Resetting Tool..... 1
7. Leveling Shoe..... 4
8. Instructions Procedure Sheet 1
9. Philips Truss Head Screws M4 x 8..... 2
10. Caution Decal - 4 Languages (-22, -26, -27 only) 1

2.1.2 Optional Holder (A702-18)

1. Base Bracket 1
2. Holder Cover 1
3. Front Cover..... 1
4. Lower Cover 1
5. Philips Pan Head Screws M4 X 6..... 8
6. Philips Truss Head Screws M4 X 8 3

2.2 COPIER SEPARATION



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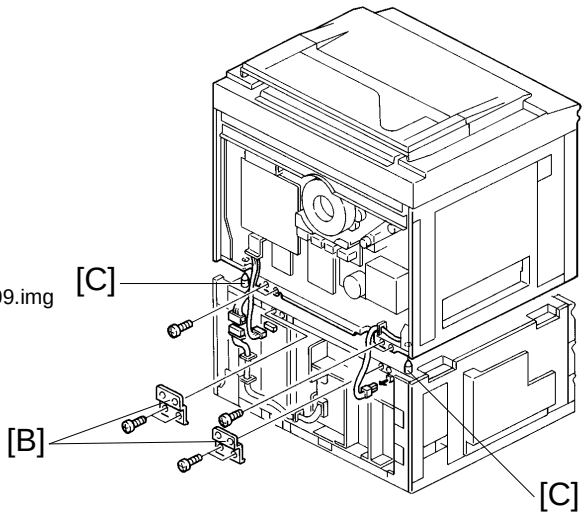

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The machine can be separated into two units (the main frame and the paper supply unit). Separation of the machine will help the transportation to the customer's site.

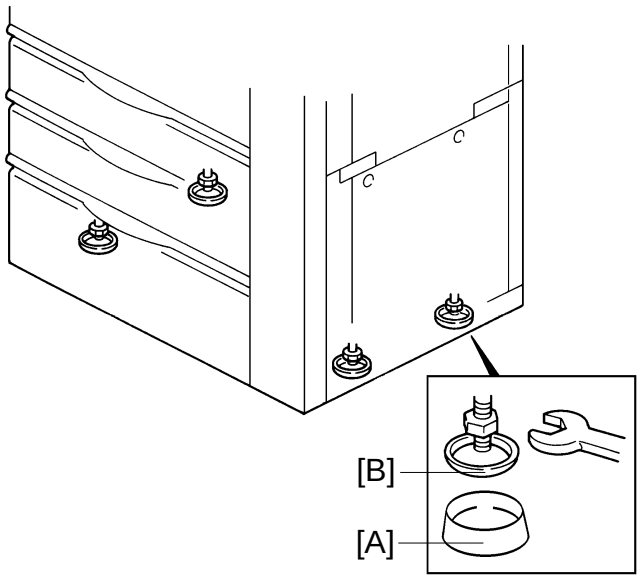
1. Open the front door and remove the front securing brackets [A] (4 screws each).
2. Remove both upper and lower rear covers (4 screws each).
3. Remove the rear securing brackets [B] (4 screws each).
4. Disconnect the connectors running between both units, and free them from the harness clamps.
5. Lift up the machine by using the handles.

NOTE: a) When lifting the machine, lift straight up.

b) Positioning pins [C] are located at the rear. When attaching, make sure to clear the harnesses out of the way.

2.3 COPIER INSTALLATION PROCEDURE

NOTE: Since the installation procedure is not packed with the copier as an accessory, always bring this manual with you.



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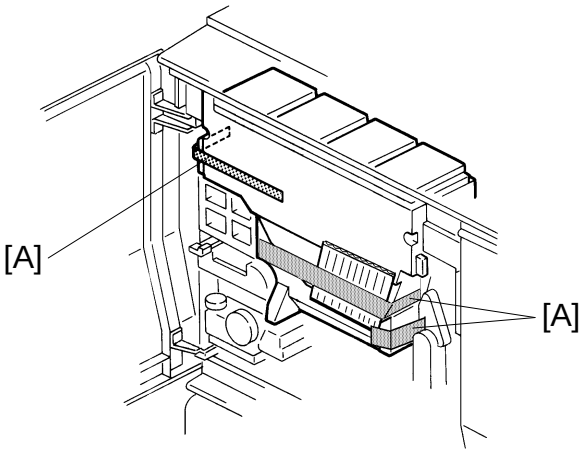
NOTE: a) Before performing the following installation procedure, be sure to plug in the copier power cord due to the change of material of the transfer roller. However, don't switch on yet.
For detailed information about the new roller, see the Detailed Description section.

b) Insert the leveling shoes [A] under the leveling feet [B], and level the machine if necessary. (The leveling feet can be screwed up or down.)

c) Keep the factory setting data sheet under the operation panel for future use. We recommend making a copy to be kept at your office also.

d) Before removing the drum protective sheet, always remove all the development units out of the copier.



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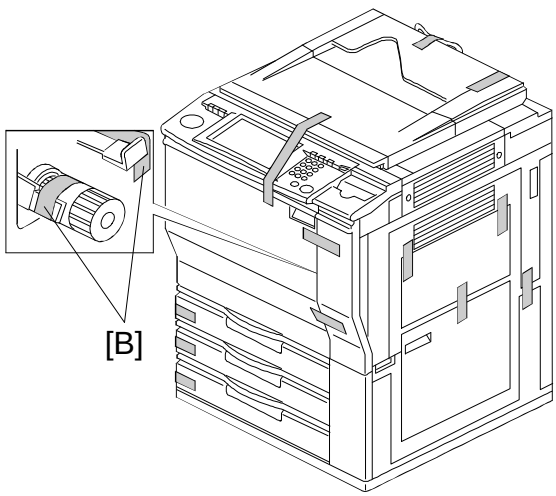

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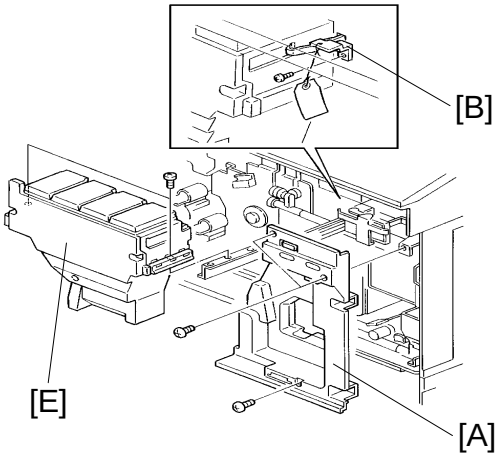
1. Remove the tape strips.
2. Open the front doors then remove the tape strips [A] around the toner tank and the tapes [B] securing the registration guide plates (knobs B1 and B3).



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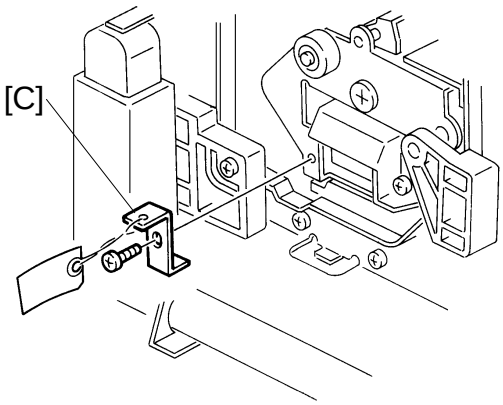

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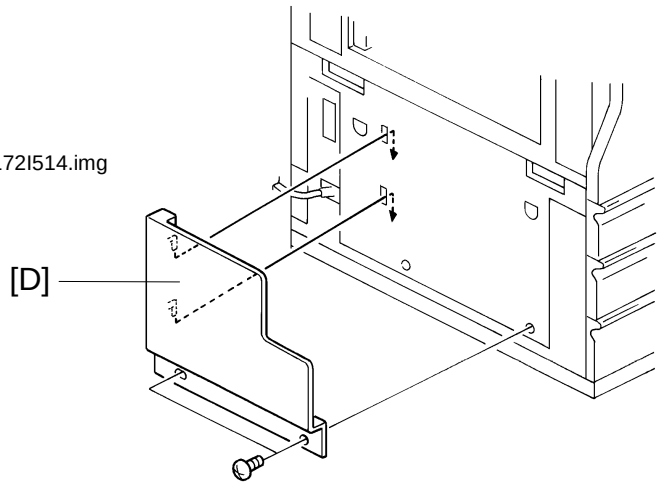

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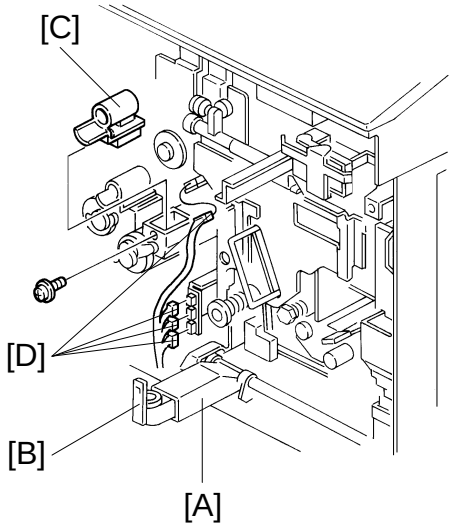
3. Remove the right inner cover [A] (3 screws) and the bracket [B] securing the toner tank to the front side plate (1 screw).
4. Remove the bracket [C] securing the transfer roller unit (1 screw).
5. Install the operating instruction holder [D] (2 truss screws [M4 x 8]).
6. Push and slide out the toner tank [E]. Then remove the toner tank (2 screws).



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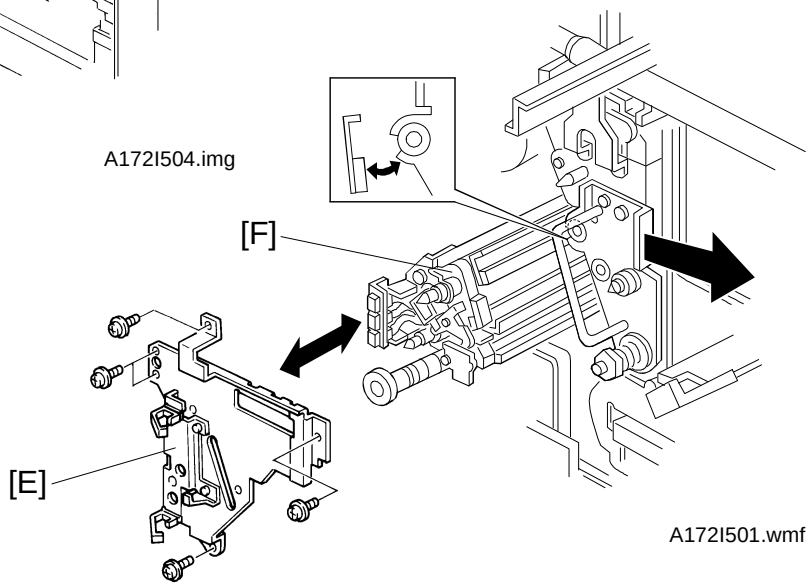

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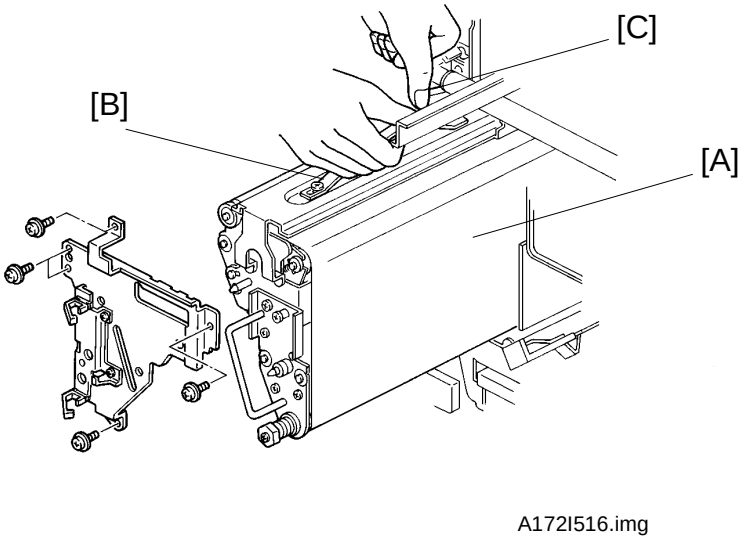
7. Lower the toner collection duct [A] (1 hook [B]).
8. Remove the yellow toner supply receptacle [C] (1 screw).
9. Disconnect the four connectors [D] and free them from the three harness clamps.
10. Remove the transfer belt stay [E] (5 screws).
11. Pull out and remove the transfer belt cleaning unit [F].

NOTE: To prevent the lubricant bar from being scratched, pull the handle of the transfer belt unit slightly to the right while you pull the transfer belt cleaning unit out.



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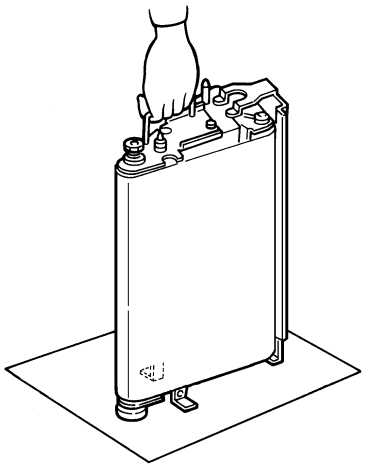

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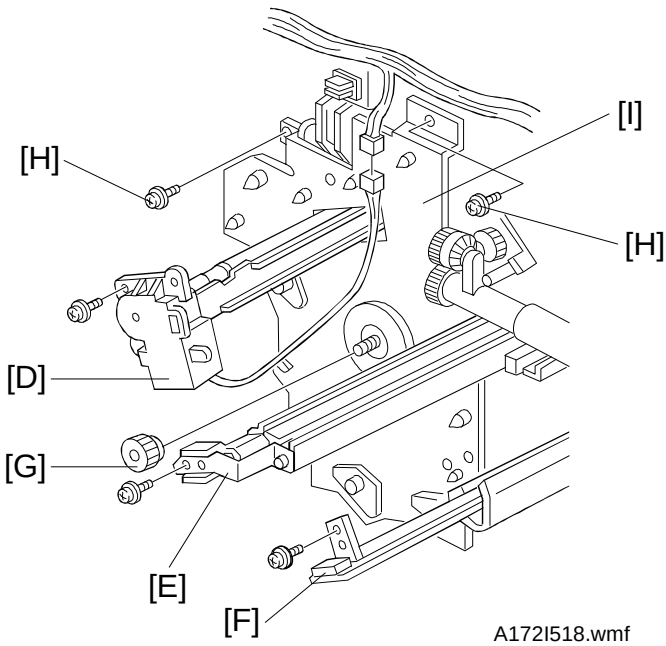

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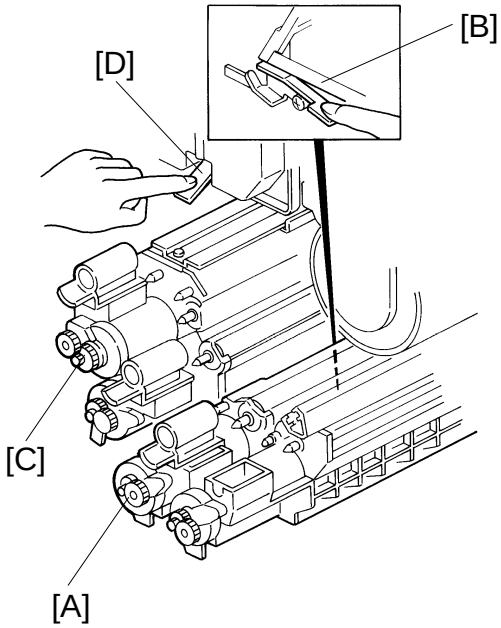
12. Carefully pull and remove the transfer belt unit [A]. (While holding the handle [B], release the lever [C])

    NOTE: There are stands at the rear side of the transfer belt unit. After pulling out the unit out of the machine, stand the transfer belt unit as shown.
    Do not touch the transfer belt surface with bare hands.

13. Remove the charge corona unit [D] (1 screw, 1 connector), PCC [E] (1 screw) and ID sensor board [F] (1 screw).

14. Remove the knob [G] and the two screws [H] and pull out all the development units slightly (2 ~ 3 cm) then remove the drum stay [I].



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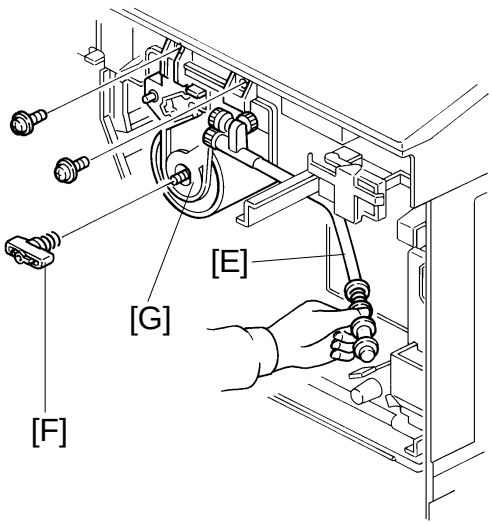

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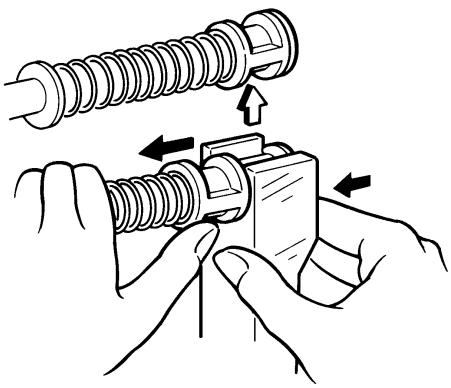

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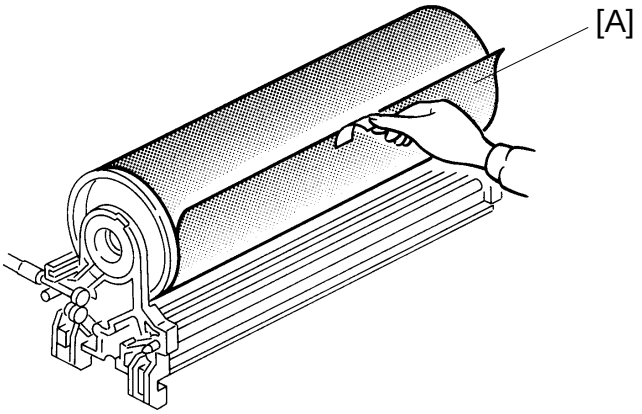
15. Remove the magenta/yellow development unit [A] (1 release lever [B]) and remove the black/cyan development unit [C] (1 release lever [D]).
16. Disconnect the drum's toner collection pipe [E] as shown.
17. Remove the knob screw [F] (counterclockwise) and pull out the quenching lamp.
18. Remove the drum unit [G] (2 screws).



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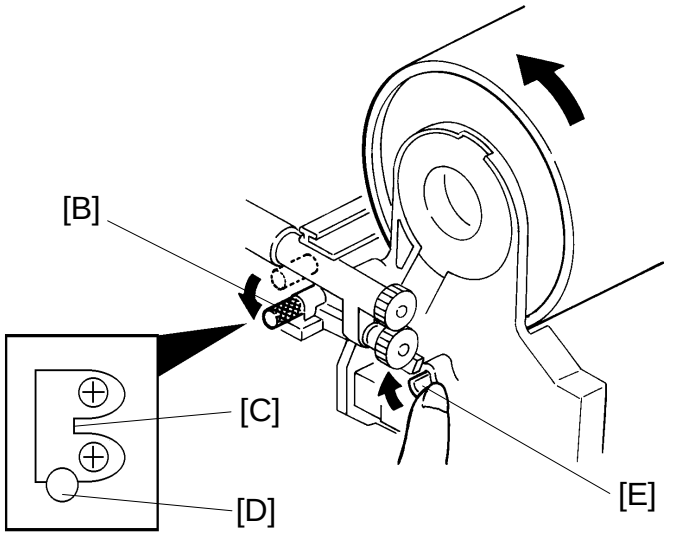

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19. Turn the drum unit over.

    NOTE: Let the unit rest on it's casing.

20. Remove the drum protective sheet [A].

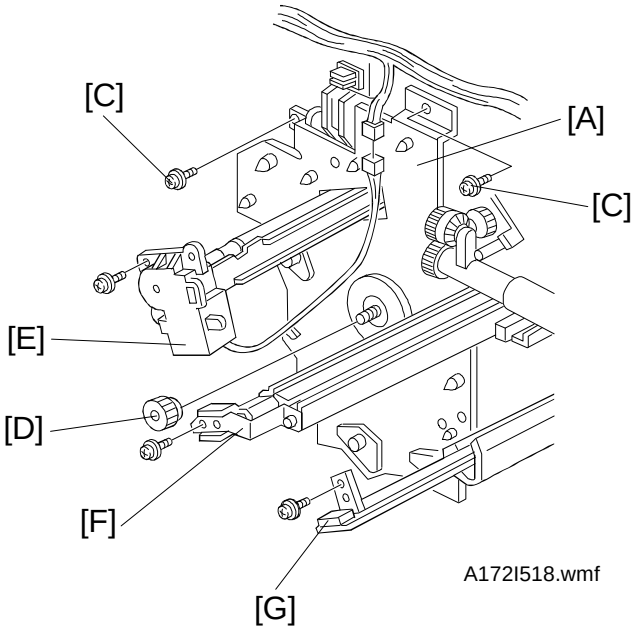
21. Loosen then move the knob [B]. (Move the knob from [C] to [D].)

    - [C] position = No pressure applied
    - [D] position = Pressure being applied

22. Tighten the knob [B] at the lower position [D].

23. While pressing up the latch [E] to apply the cleaning blade pressure, rotate the drum counterclockwise 3 times to ensure that setting powder is evenly applied, as shown.

    NOTE: Hold only the edge of the drum to rotate it (within 1 cm from the end).



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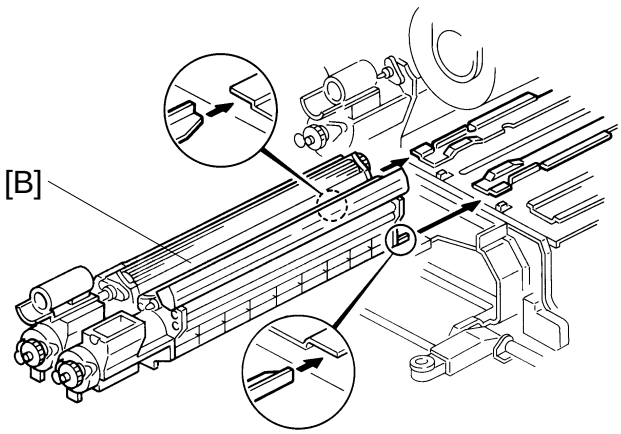

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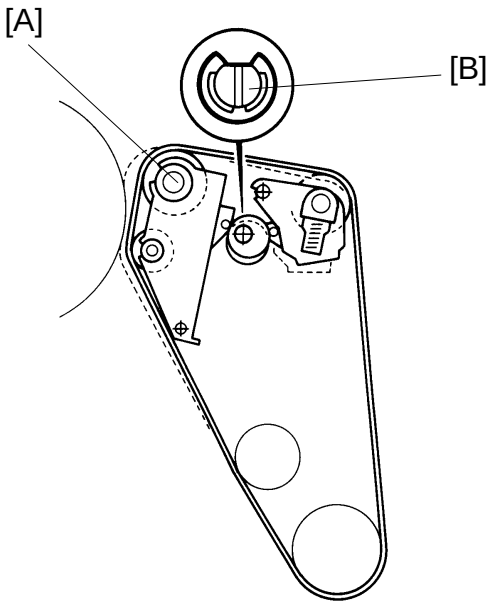
24. Reinstall the following units or parts in the machine as follows.
    1) Slide in the drum unit and secure it to the shaft with the knob screw.
    2) Set the drum stay [A] in position and secure the drum unit (2 screws).
    3) Remove the drum stay [A] and reinstall the quenching lamp, toner collection tube and development units.
       NOTE: When reinstalling the magenta/yellow development unit [B], make sure that the bottom plate fits the rails as shown.
    4) Set the drum stay by securing the 2 screws [C] then the knob [D].
    5) Reinstall the charge corona unit [E] (1 screw, 1 connector), PCC [F] (1 screw), and the ID sensor board [G] (1 screw).



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25. Confirm the belt bias roller [A] is in the release position (innermost position) as shown. If not, turn the shaft [B] with a flat head screwdriver until the belt bias roller comes to the release position.

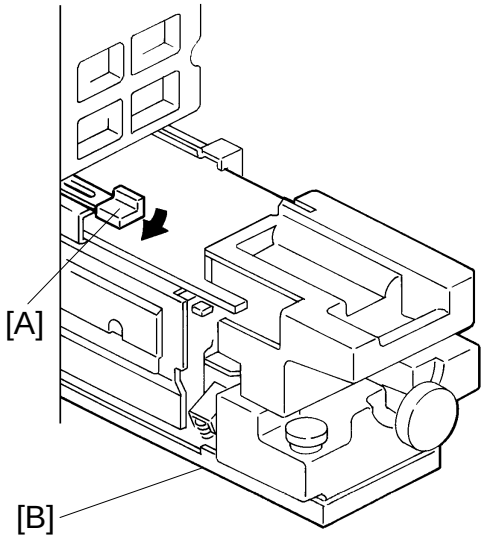
    NOTE: If the belt bias roller is not in the release position, it will touch the drum and damage it.

26. Re-install the following units or parts in the following order.
    1) Transfer belt unit.
    2) Transfer belt cleaning unit
       NOTE: To prevent the lubricant bar from being scratched, pull the handle of the transfer belt unit slightly to the right while you re-install the transfer belt cleaning unit.
    3) Transfer belt stay (5 screws)
    4) Four connectors (6P white, 3P red, 3P white, 3P blue)
       NOTE: The 2P white connector is not used.
    5) Toner collection duct (1 hook)

⚠ CAUTION

1. Be careful when handling the fusing unit. It is hot.

2. Take care not to spill silicone oil on the floor. If silicone oil spills on the floor, immediately clean it with a silicone oil remover. Silicone oil is very slippery and can cause someone to fall.



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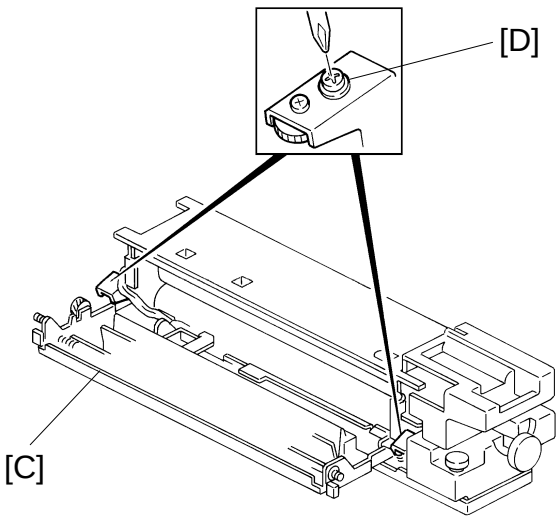

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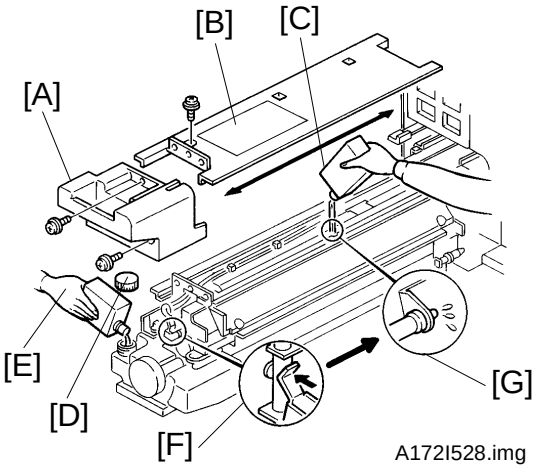
27. While releasing the lever [A], pull out the fusing unit [B].

28. Open the exit unit [C] (2 "D4" release levers).

29. Loosen the 2 black screws [D] until they moves freely so that the fusing pressure is being applied.

    NOTE: Do not turn the pressure adjustment screws which are located just beside the screws [D].



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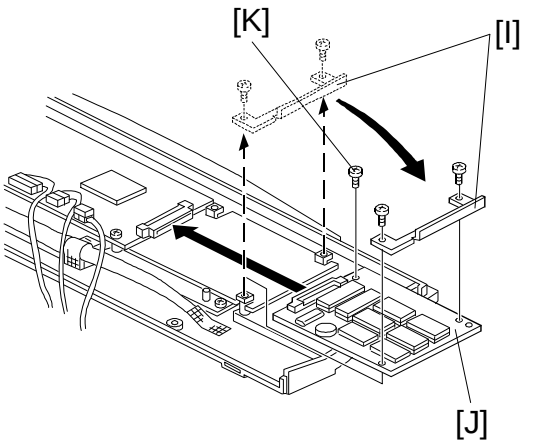

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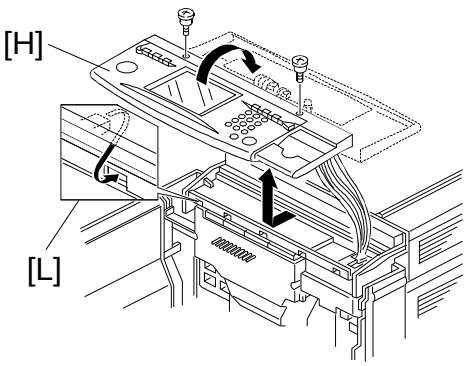

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30. Remove the fusing handle cover [A] (2 screws) and the fusing top cover [B] (1 screw).

31. Prime the oil supply pad with silicone oil [C].

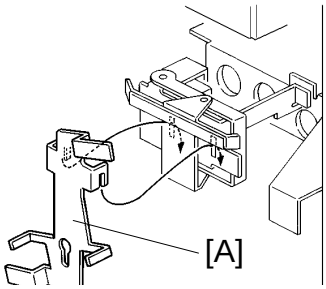
32. Remove the oil cap [D] and fill the tank with silicone oil to its max level [E].

33. Manually operate the oil pump lever [F] and confirm the proper operation of the silicon oil supply system [G].

34. Reset the covers, the exit unit, oil cap and the fusing unit.

35. For **-26 and -27** machines, perform the following language ROM installation procedures. For **-22** machines, perform if replacement to a language other than English is needed.
    1) Detach the operation panel [H] (2 screws). (Do not remove any connectors.) Gently place it face down on the platen cover.
    2) Remove the securing bracket [I] (2 screws).
    3) Install the requested language rom board [J] using the securing bracket and the accessory screw [K] as shown.
    4) Reinstall the operation panel, making sure that the panel is properly hooked in [L].

36. Locate the switch actuator [A] inside the right door and actuate the front safety switch.



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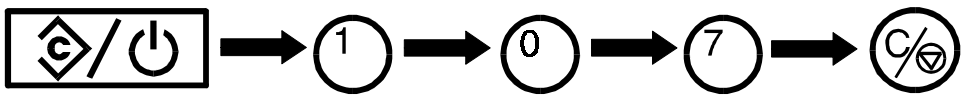
37. Plug in the power cord and turn on the main switch.

38. Enter SP mode as follows.
    1) Press the clear modes key.
    2) Wait for 2 or 3 seconds while the display returns to the initial screen.
    3) Enter "107" with the number keys.
    4) Hold down the clear/stop key for more than 3 seconds.

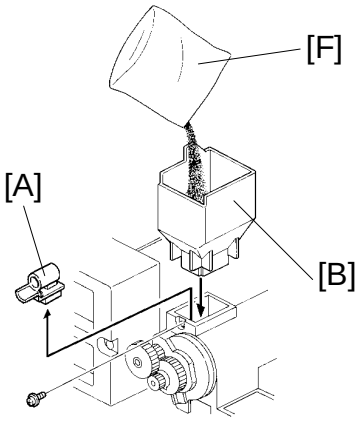


39. Touch the SP Test Mode key [B].

    NOTE: Make sure to use the editor pen when touching the touch panel display.

40. Touch the Next key [C] to open page 4.

    NOTE: Wait until the development unit drive stops, then start step 41.



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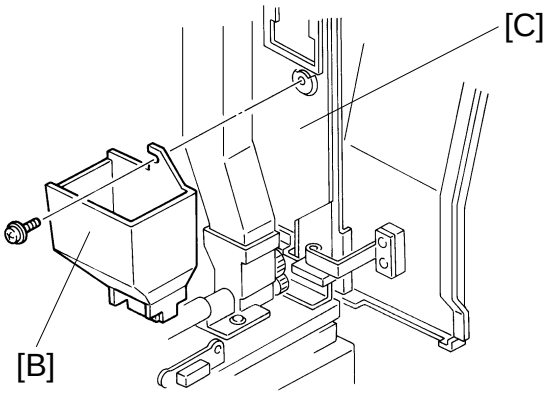

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41. Remove the black toner supply receptacle [A] (1 screw).

    NOTE: Refer to the toner tank lid for the color of the development unit.

42. Remove the developer supply funnel [B] from the bracket [C] and clean the inner surface.

43. Set the developer supply funnel on the black development section as shown.

44. Touch the key [D], to enter the output mode.

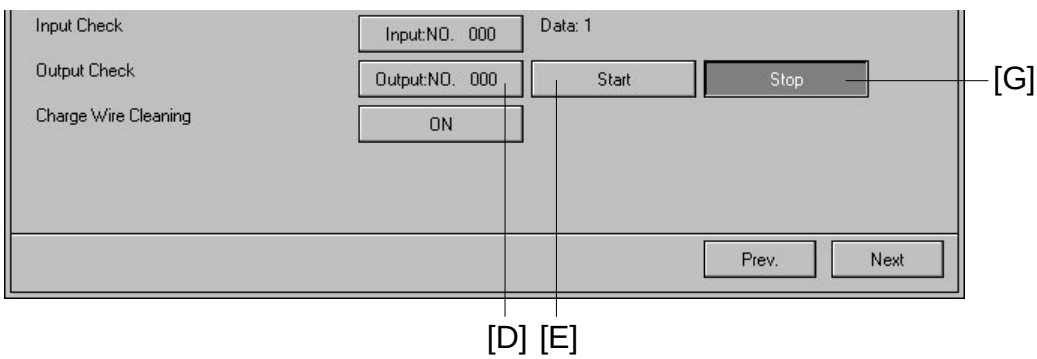
45. Enter "68" with the number keys, then touch the key [D] again to select test mode #68 "black development drive motor ON".

46. Touch the Start key [E].

47. Shake a pack of black developer [F] 20 times then pour it in.

48. 1 minute after pouring the developer, touch the stop key [G].

    NOTE: Do not touch the stop key within 1 minute, otherwise, the developer will not be distributed evenly in the development unit.



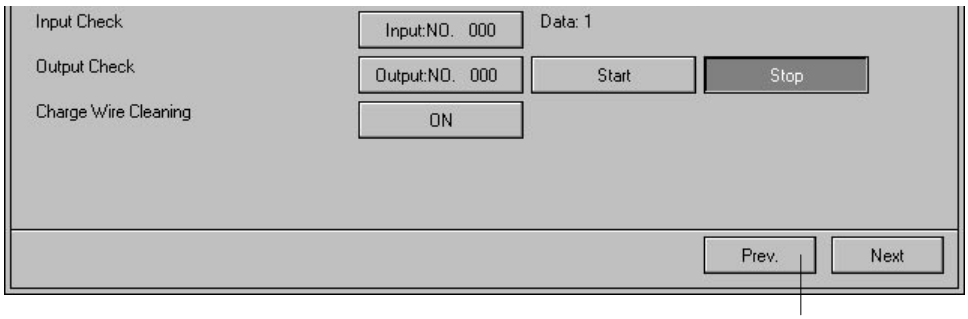
49. Remove the developer supply funnel, then install the toner supply receptacle.

50. Install the cyan, magenta and yellow developer in the same manner as black developer installation (step #40 to #49).

    NOTE: To select the "color development drive motor ON" mode, enter "69" for color instead of 68 for black (refer to step #45).

51. Return the developer supply funnel to the original position.

52. Touch the Previous key [A] to open page 3.



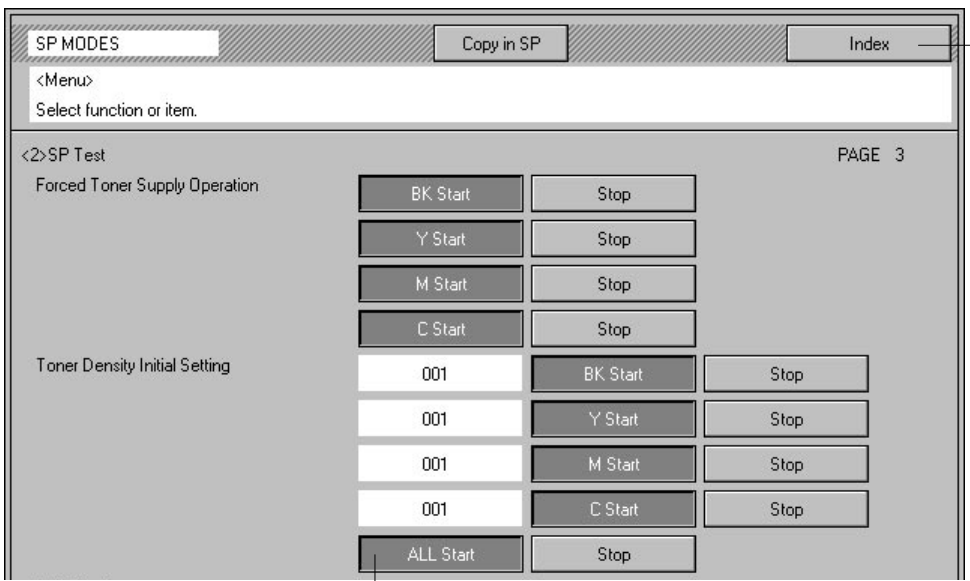
[A]

53. Perform developer initial setting as follows.
    1) Confirm that the main charge corona, PCC, ID sensor boards are set correctly (1 screw each).
    2) Confirm that the toner tank is not installed.

    NOTE: If the toner tank is installed, toner is supplied during developer initial setting and the machine cannot figure out the proper toner concentration of the new developer.

    3) Touch the All Start key [B] to start the developer initial setting. After the adjustment is completed, the machine stops automatically.

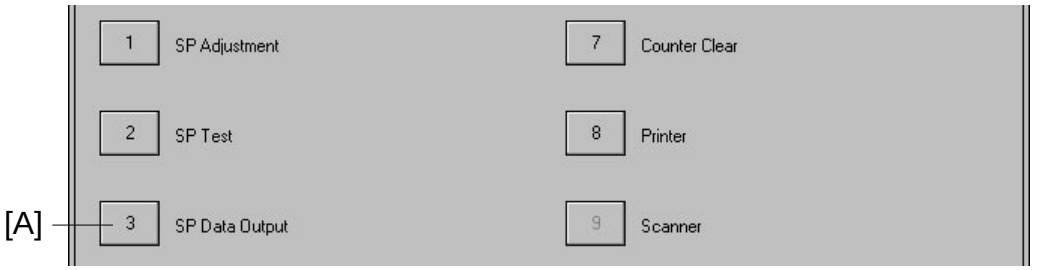
54. Touch the Index key [C].



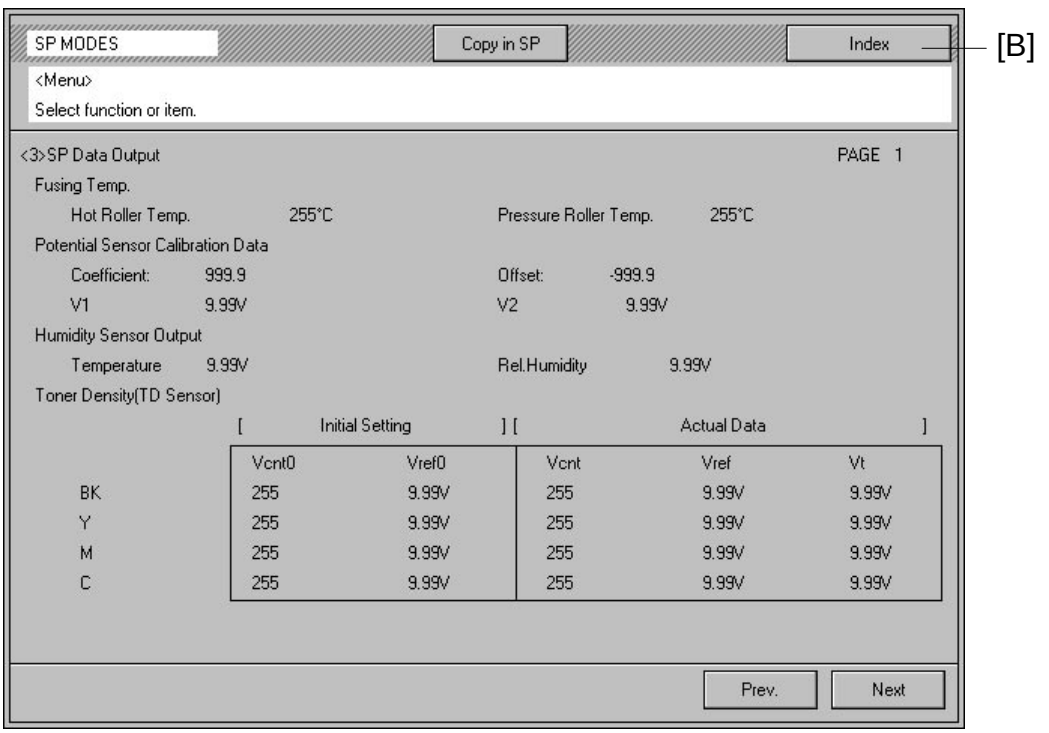
[C]

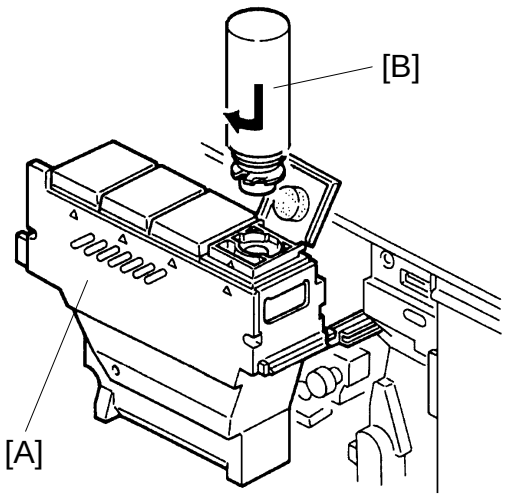
[B]

55. Touch the SP Data Output key [A].



56. Check whether VT has the same values as VREF for all colors (Bk, Y, M, C). If not, touch the Index key [B] then return to the test mode page 3 to perform developer initial setting (step 53) again.





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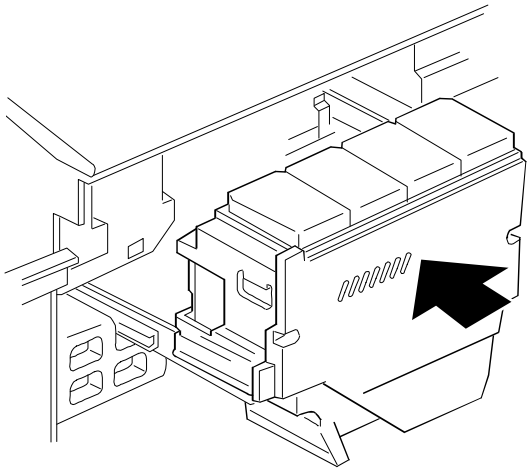

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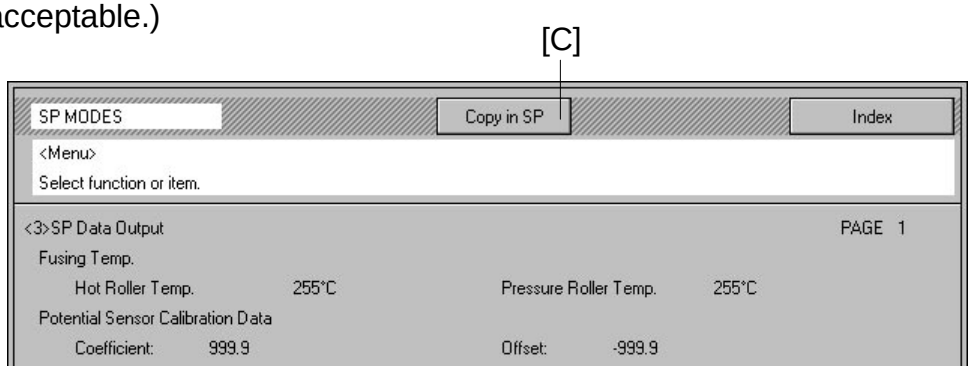
57. Put the toner tank [A] on the Accuride rails (2 screws).
58. Add toner [B] for all colors.

    NOTE: • Read the instructions on the box for how to add toner.

    • Before reinstalling the toner tank, wait at least 30 seconds to let the toner settle.

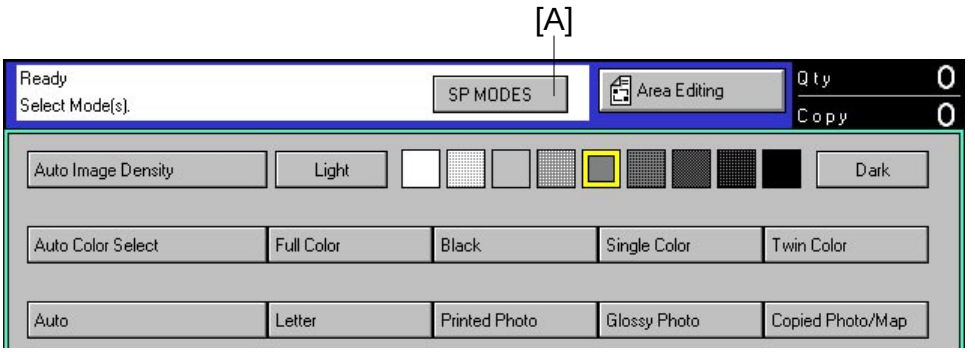
59. Slowly push the toner tank [A] in.
60. Close the front doors and install the copy tray.
61. Load A3 or 11" x 17" paper in the 3rd paper tray.
62. Place a C-4 test chart on the exposure glass.
63. Touch the Copy In SP key [C] and make 20 full color copies using A3 or 11" x 17" size paper. (40 full color copies using A4 or 11" x 8 1/2" is also acceptable.)



64. **Wait 5 minutes** to ensure that no residual voltage remains on the drum.

    NOTE: The process control self check (step 67) must be performed when there is no residual voltage on the drum.

65. Touch the SP Mode key [A] to enter the SP mode.

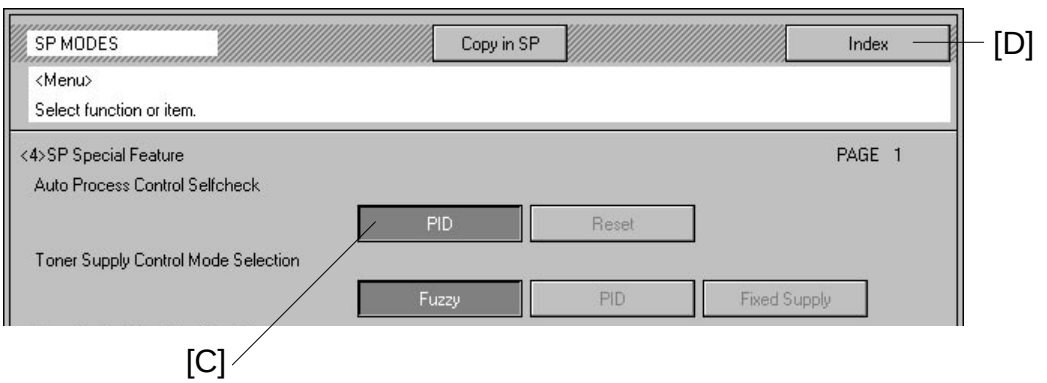


66. Touch the Index key.

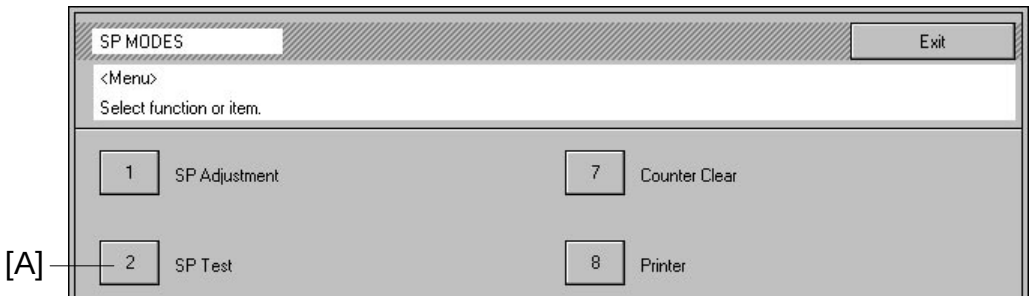
67. Touch the SP Special Feature key [B].

68. Confirm that the PID key [C] is selected for the Process Control Mode Selection. If not, touch the PID key [C].

69. Touch the Index key [D].



70. Touch the SP Test Mode key [A].



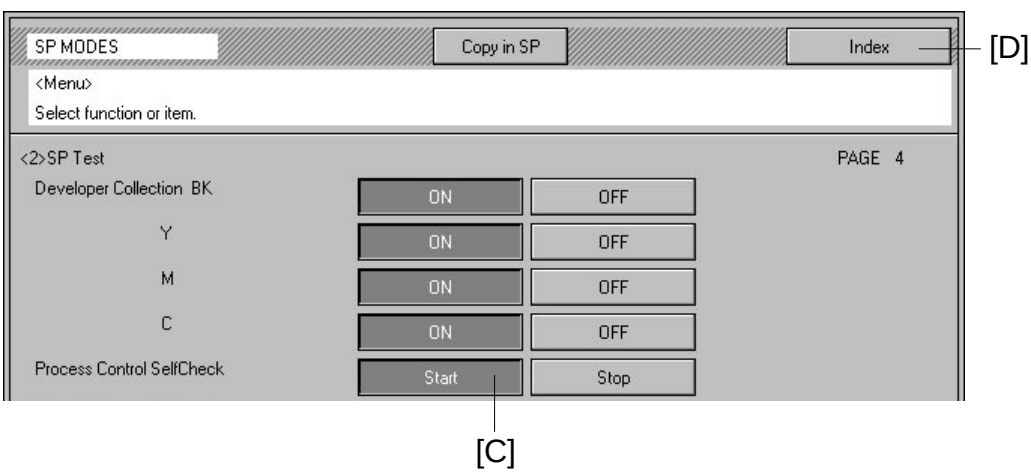
71. Touch the Next key [B] to open page 4.

72. Touch the Process Control Self Check Start key [C]. After the self check is completed, the machine stops automatically.

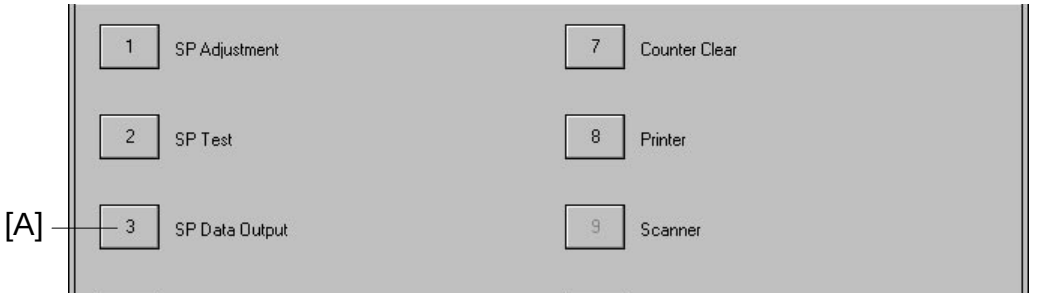
⚠ CAUTION

While process control is taking place, do not touch the knob, drum stay, or drum shaft. These parts and the fly wheel carry a high electrical voltage during process control.

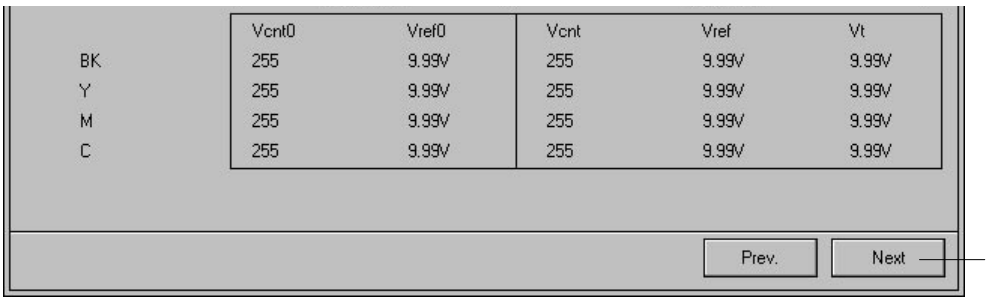
73. Touch the Index key [D].



74. Touch the SP Data Output key [A].

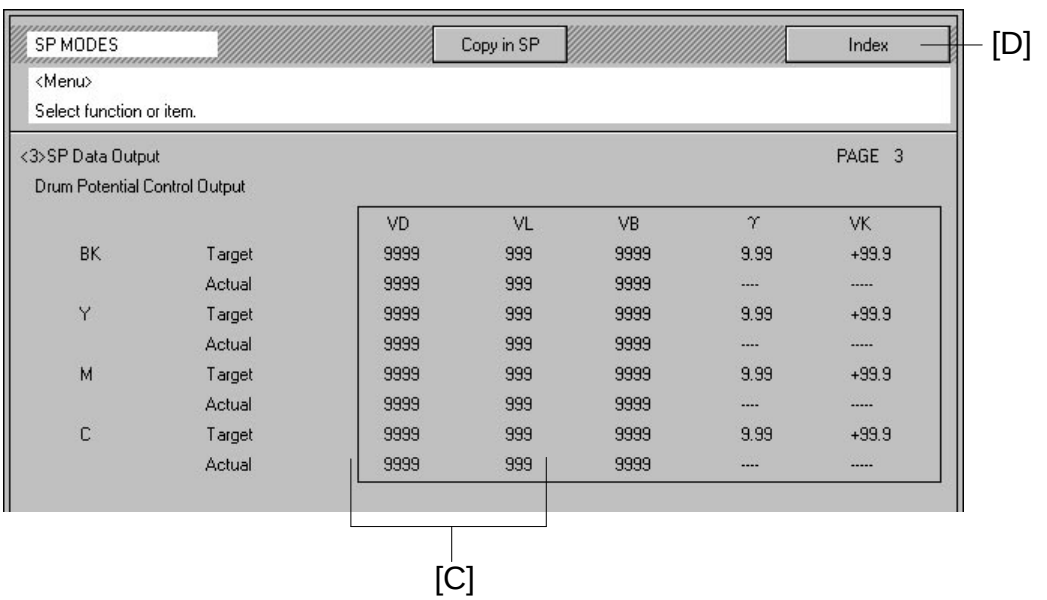


75. Touch the Next key [B] and open page 3.

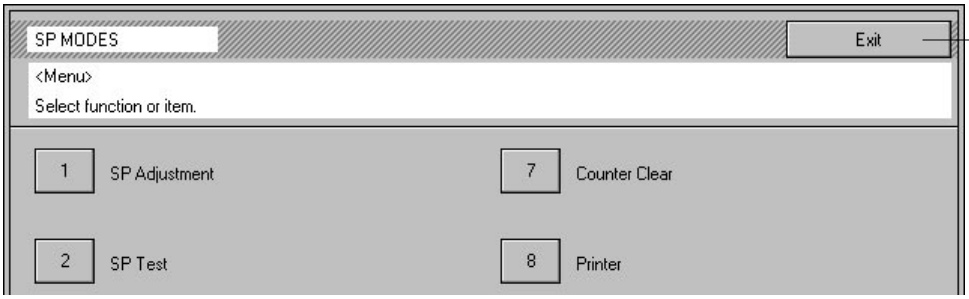


76. Check the V_D and V_L [C] for each color. If the difference between 'Target' and 'Actual' for any color exceeds 5, wait 5 minutes and go back to step 72 and perform the process control self check again.

77. Touch the Index key [D].

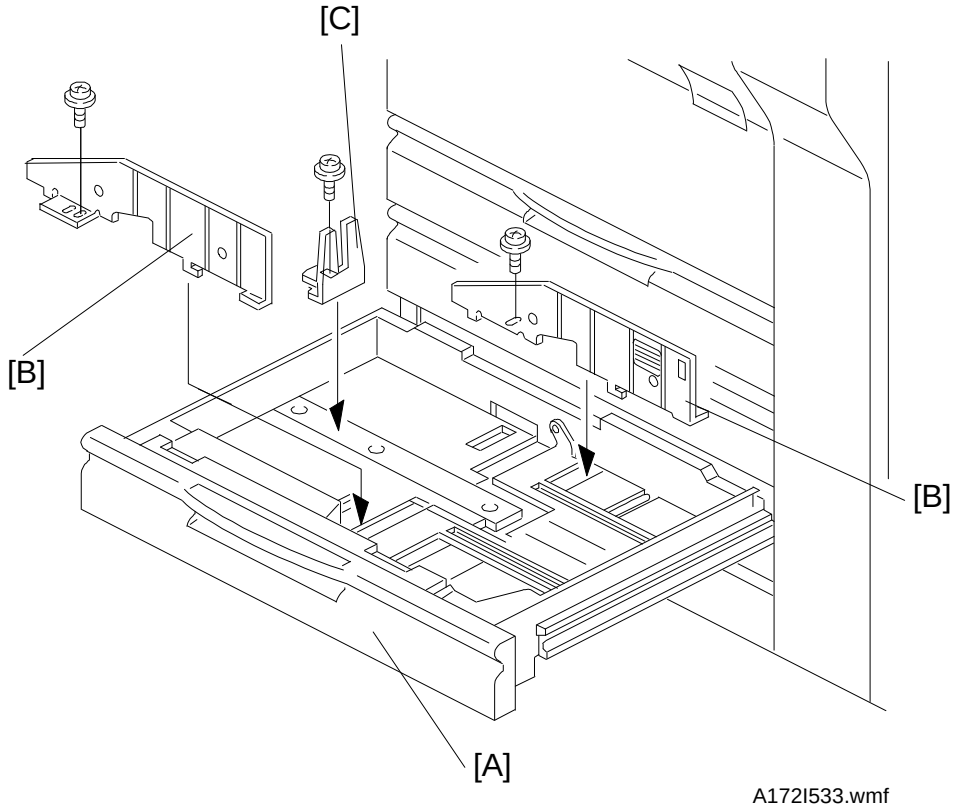

SP MODES
Copy in SP
Index
[D]
<Menu>
Select function or item.
<3>SP Data Output
PAGE 3
Drum Potential Control Output
VD VL VB γ VK
BK Target 9999 999 9999 9.99 +99.9
Actual 9999 999 9999 ---- -----
Y Target 9999 999 9999 9.99 +99.9
Actual 9999 999 9999 ---- -----
M Target 9999 999 9999 9.99 +99.9
Actual 9999 999 9999 ---- -----
C Target 9999 999 9999 9.99 +99.9
Actual 9999 999 9999 ---- -----
[C]

78. Touch the Exit key [A].



79. Turn off the main switch and place the accessory switch actuator in its original position.
80. Reinstall the right inner cover (3 screws) and turn on the main switch.
81. Copy the C-4 test chart in letter mode and printed photo mode.
82. Perform the ACC procedure. (See chapter 5.)

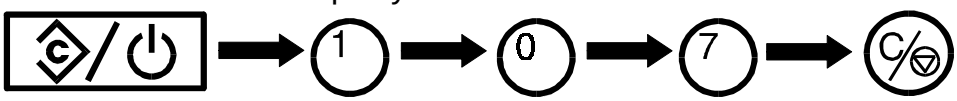
2.4 PAPER SIZE CHANGE



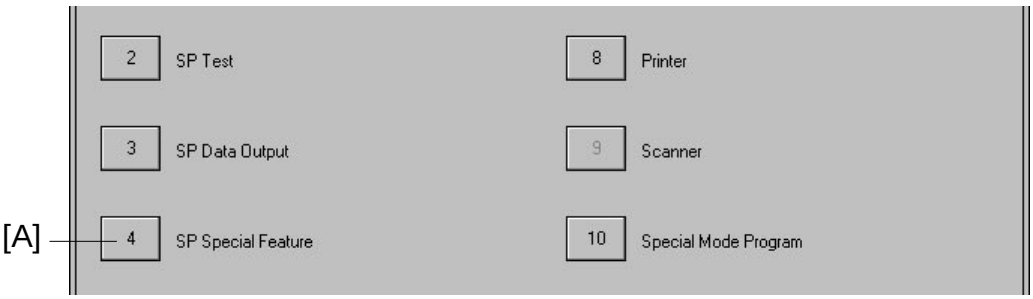
At the customer's request, change the paper size for the 3rd feed tray as follows.

1. Draw out the paper feed tray [A].
2. Change the position of the front and the rear side fences [B] (1 screw each) and the end fence [C] (1 screw) to match the paper size.

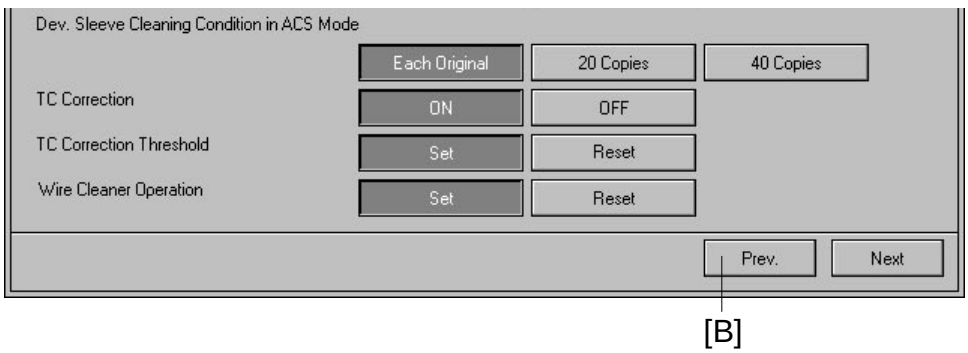
3. Enter SP Mode as follows:
   1) Press the clear modes key.
   2) Wait for 2 or 3 seconds while the display returns to the initial screen.
   3) Enter "107".
   4) Hold down the clear/stop key for more than 3 seconds.



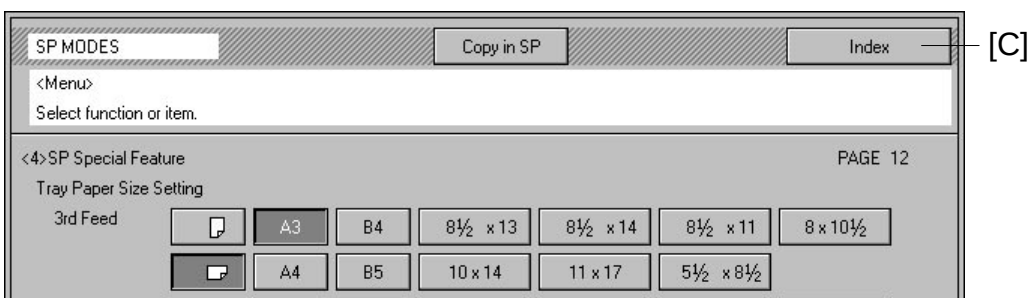
4. Touch the SP special feature key [A].



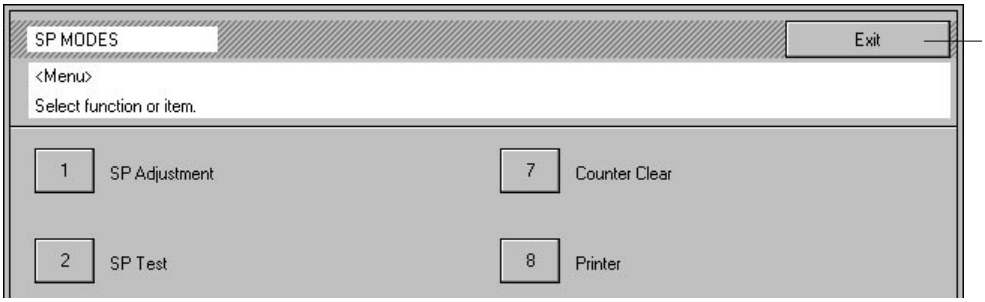
5. Touch the Previous key [B] to select the paper tray size setting mode (page 12).



6. Touch the appropriate paper size key and direction key for the 3rd feed station. Then touch the Index key [C].

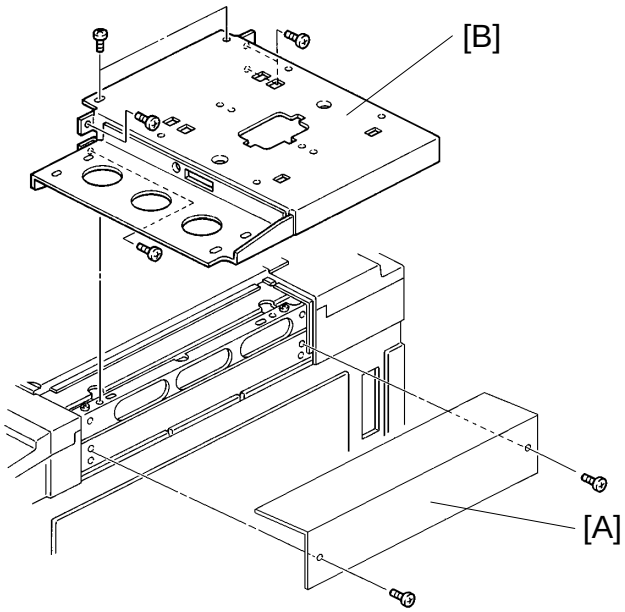


7. Touch the Exit key [A] to exit SP mode.



8. Check machine operation and copy quality.

2.5 OPTIONAL HOLDER (A702-18)



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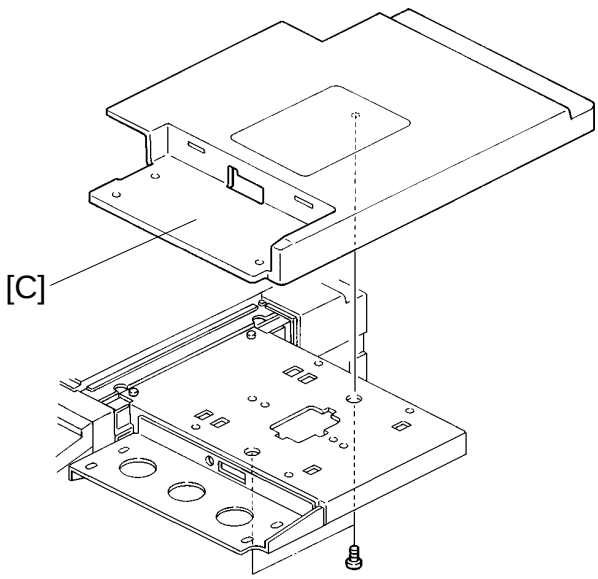
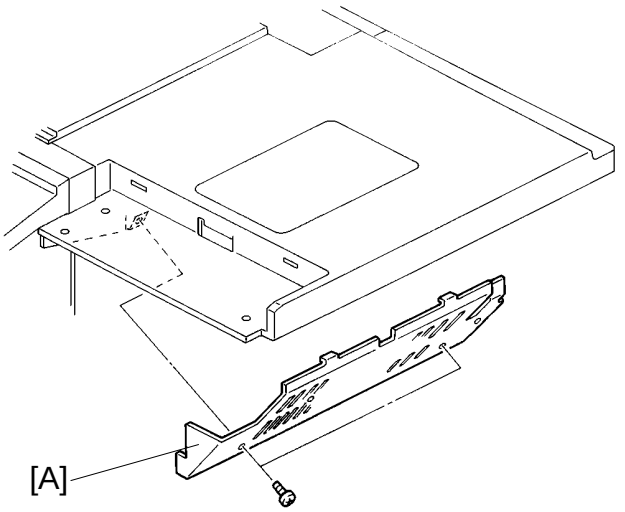


A172I535.img

1. Remove the right upper cover [A] (2 screws).
2. Install the holder base bracket [B] (6 screws).
3. Install the holder cover [C] (2 screws).



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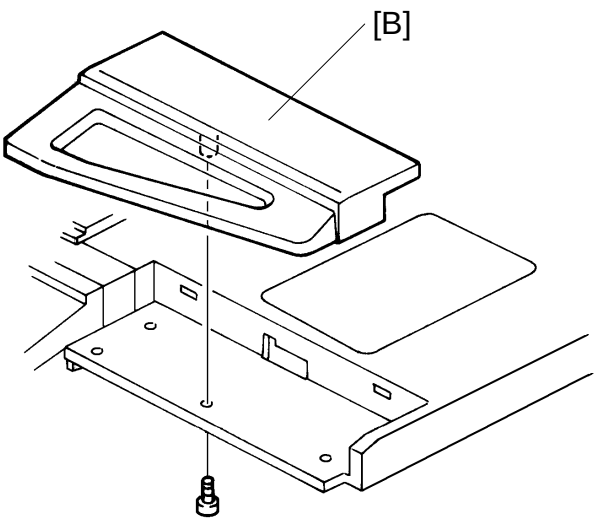

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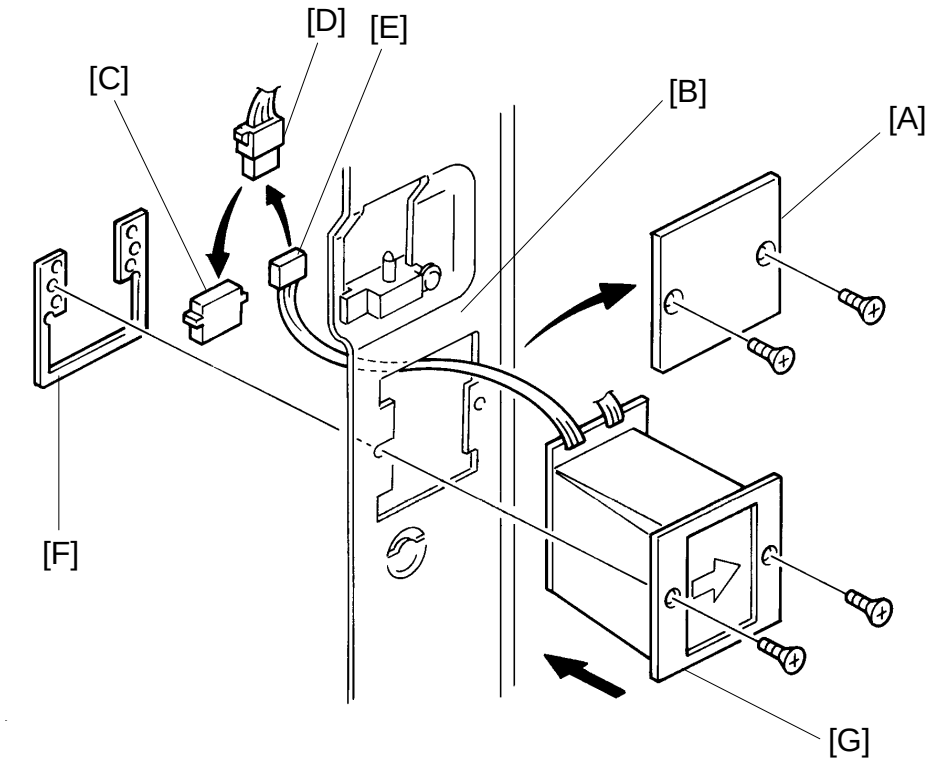
4. Install the lower cover [A] (2 truss screws).
5. Install the front cover [B] (1 truss screw).

2.6 KEY COUNTER INSTALLATION

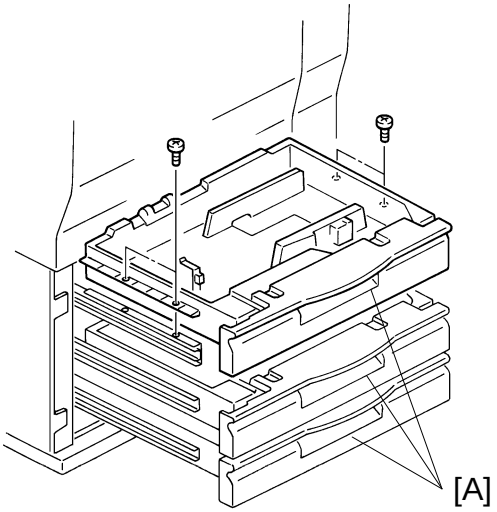


A172I538.img

1. Remove the following parts. (Refer to Exterior And Inner Covers.)
   - Upper rear cover
   - Right inner cover
   - Upper right cover
2. Remove the key counter cover [A] (2 screws) from the key counter holder bracket [B].
3. Disconnect the short-circuit connector [C] from the key counter connector [D].
4. Couple the connector [D] with the key counter connector [E].
5. Hold the securing plate [F] on the inside of the key counter holder bracket and insert the key counter holder [G].
6. Align the screw holes in the securing plate with the mounting holes in the key counter holder and secure the key counter holder (2 screws).

   NOTE: The securing plate has three different hole sizes. Use the holes that match those on the key counter holder that you are installing.
7. Reinstall all the covers and check the key counter operation.

2.7 UPPER AND LOWER TRAY HEATERS (OPTIONS)



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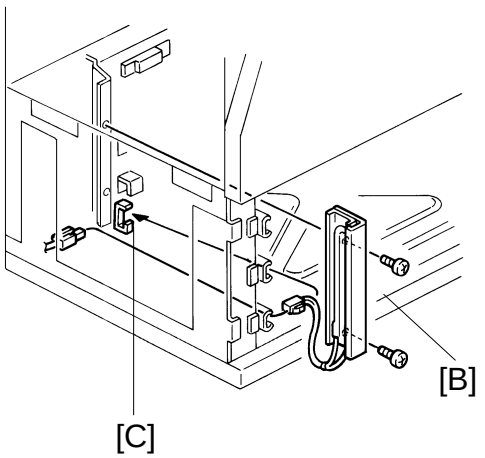

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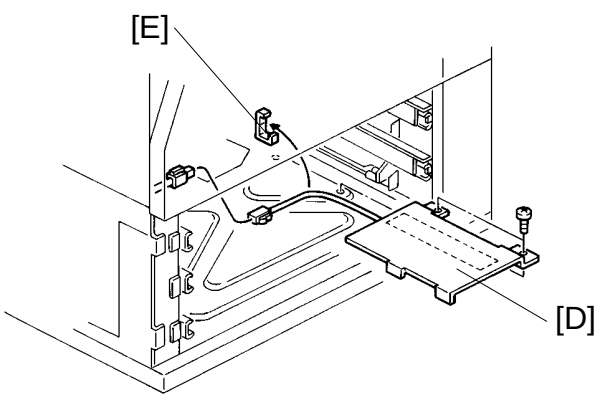


A172I541.img

NOTE: Both heaters are available as service parts.

1. Attach the heater to the bracket (2 M4 x 10 screws).
2. Pull out and remove all the paper feed trays [A] (4 screws each).
3. Install the upper tray heater assembly [B] (2 M4 x 8 screws).
4. Mount the harness in the clamp [C] and connect as shown.
5. Install the lower tray heater assembly [D] (2 M4 x 8 screws).
6. Mount the harness in the clamp [E] and connect as shown.
7. Reinstall the paper feed trays [A].

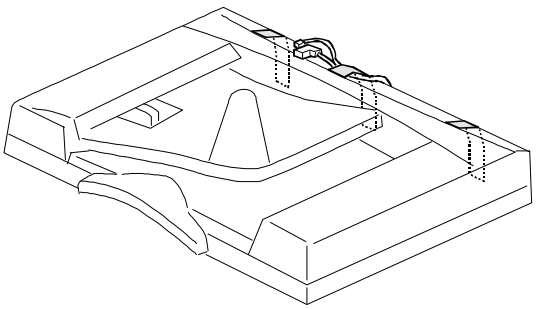
3. DUAL JOB FEEDER (A610)

3.1 ACCESSORY CHECK

Check the accessories against the following list:

Description	Q'ty
1. Installation Procedure	1
2. NECR (-17, -27 only)	1
3. Stepped Screw	2
4. Sponge Retainer	1
5. Philips Pan Head Screw with Washer - M5 x 10	2
6. Hinge Stopper Bracket	2
7. Philips Pan Head Screw - M4 x 6	2
8. Feed-out Guide Mylar	1
9. Decal	1

3.2 INSTALLATION PROCEDURE



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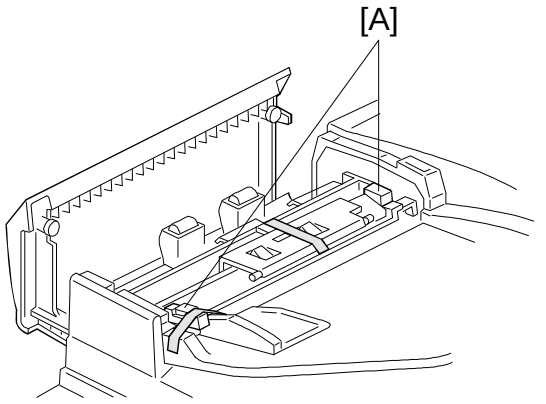
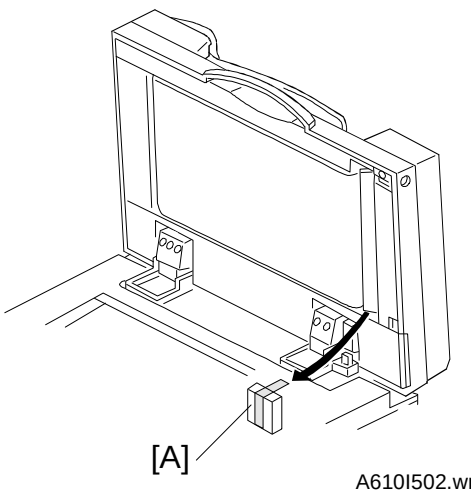


A610I501.wmf



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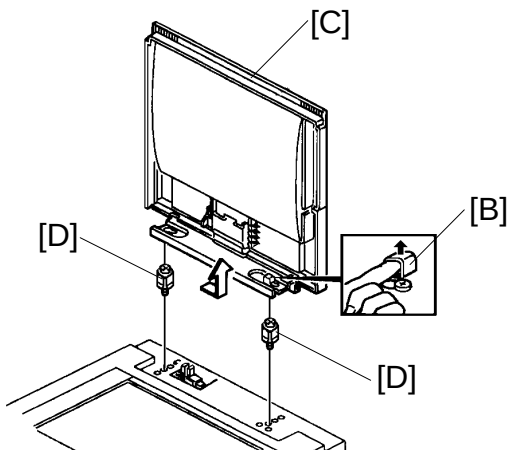
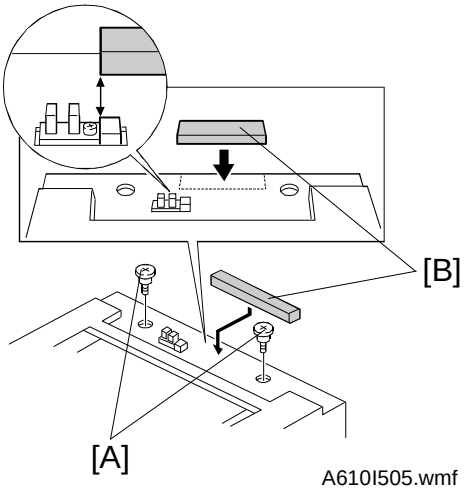


A610I503.img

1. Remove the tape strips and the cushions [A] as shown.
2. While raising the lock plate [B], slide the platen cover [C] to the right and remove it.
3. Remove the platen cover mounting screws [D].



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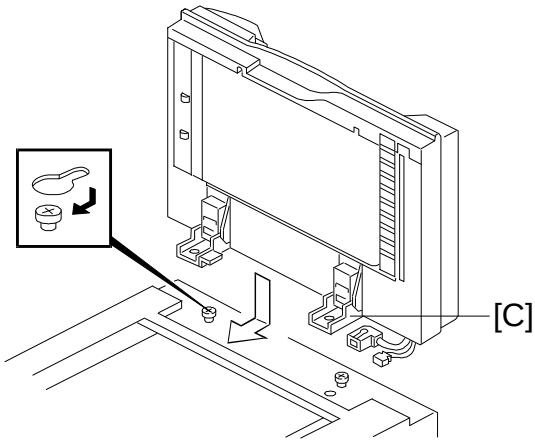

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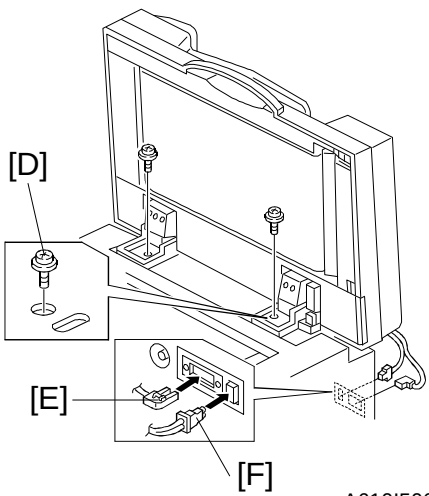

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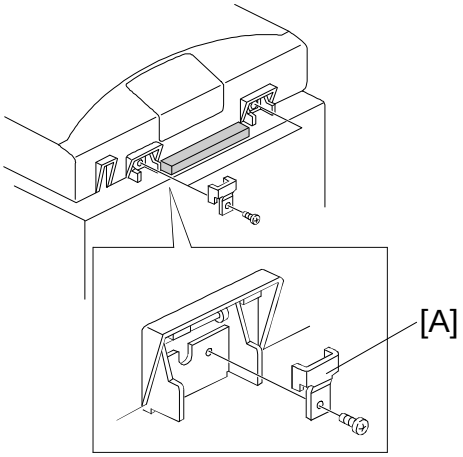
4. Install two stepped screws [A].
5. Attach the sponge retainer [B] to the top cover of the copier as shown.
6. Mount the DF on the copier by inserting the two stepped screws into the holes in the DF hinge [C], then slide the DF to the front, as shown.
7. Secure the DF to the copier by using the screw holes as shown (2 screws - M5 x 10 [D]).
8. Remove the small cap on the upper rear cover then connect the main connector [E] and the fiber optic cable connector [F].



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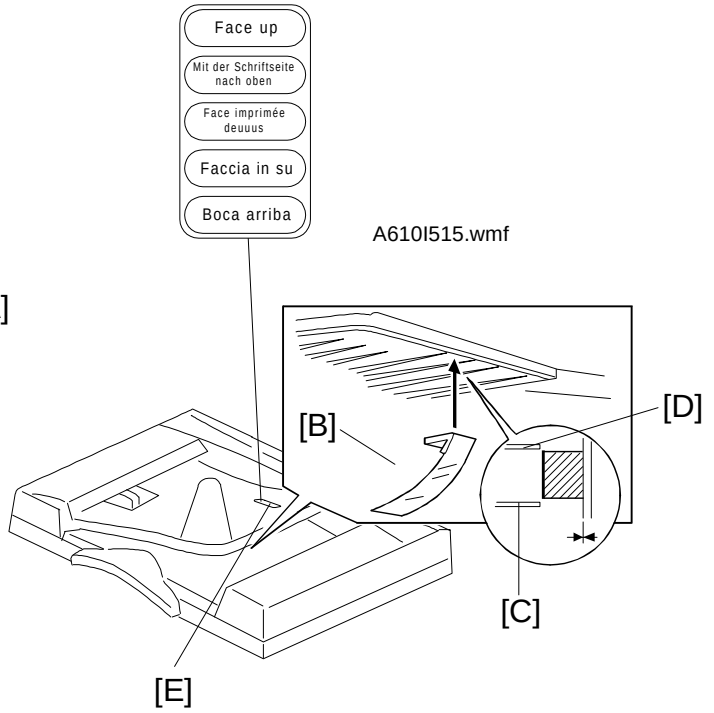

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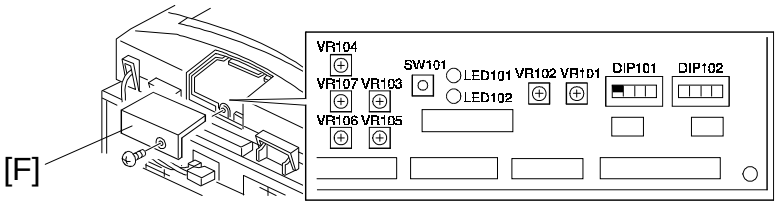
A610D508.wmf



A610I509.wmf

9. Secure the hinge stopper bracket [A] as shown (2 screws - M4 x 6).
10. Attach the feed-out guide mylar [B] under the original table. Attach it between the 3rd [C] and 4th [D] ribs (counting from the rear).
11. Apply the appropriate decal at [E].
12. Remove the small cover [F] at the rear of the DF upper cover (1 screw), and turn on DIP SW101-1.
13. Plug in the copier and turn on the main switch.

    NOTE: The copier automatically recognizes that the DF has been installed.
14. Make copies using the DF and confirm the machine functions properly.
15. Explain to the customer that settings may now be changed, depending on the characteristics of each original.

4. SORTER (A322)

4.1 ACCESSORY CHECK

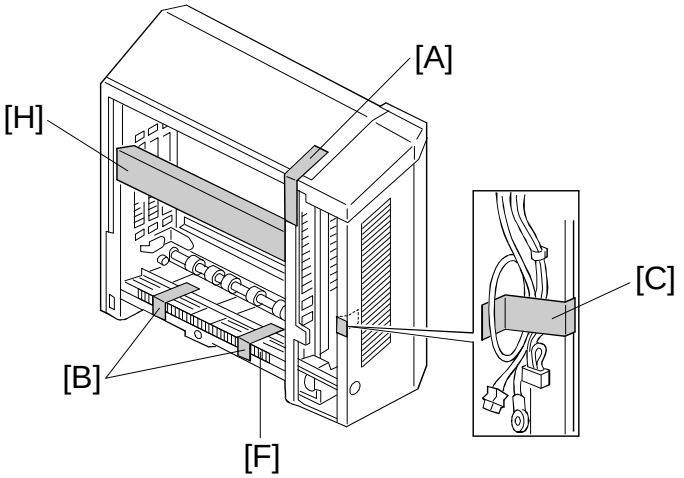
Check the accessories against the following list:

Description	Q'ty
1. Installation Procedure	1
2. NECR (-17 only)	1
3. Stud	2
4. Knob Screw	2
5. Sorter Bin	15
6. Interrupt Bin	1
7. Grounding Screw	1

Sorter Adapter

Description	Q'ty
1. Fan Motor Assembly	1
2. Air Outlet Plate	1
3. Harness Clamp	2
4. Relay Harness	1
5. Guide Plate Assembly	2
6. Philips Pan Head Screw - M4 x 6	9

4.2 INSTALLATION PROCEDURE



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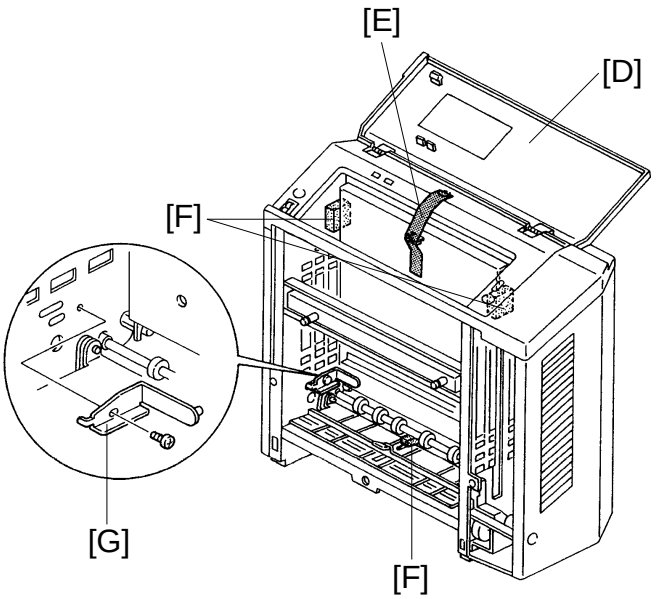
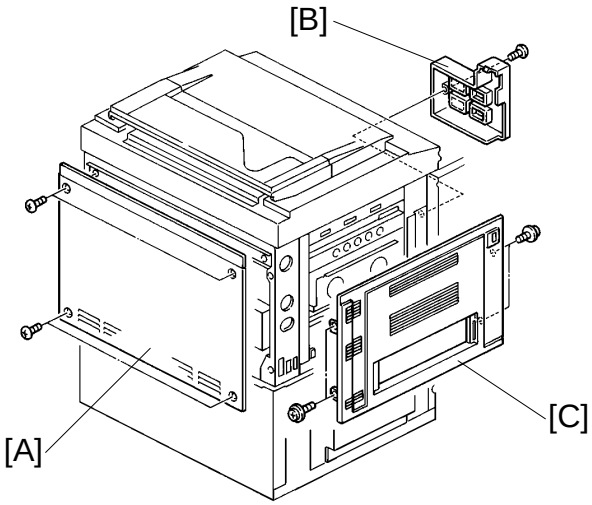


A322I501.img

NOTE: To install this sorter on the A172/A199 copier, the A527 sorter adapter kit (option) is necessary.

1. Remove four pieces of tape:
   - Sorter Top Cover [A] (1 pc)
   - Transport Guide [B] (2 pcs)
   - Sorter Harness [C] (1pc)

2. Open the top cover [D] and remove the following items:
   - Tape [E] (1 pc)
   - Cushion [F] (4 pcs)
   - Clamp [G] (1 pc) [1 screw]
   - Cardboard [H] (1 pc)



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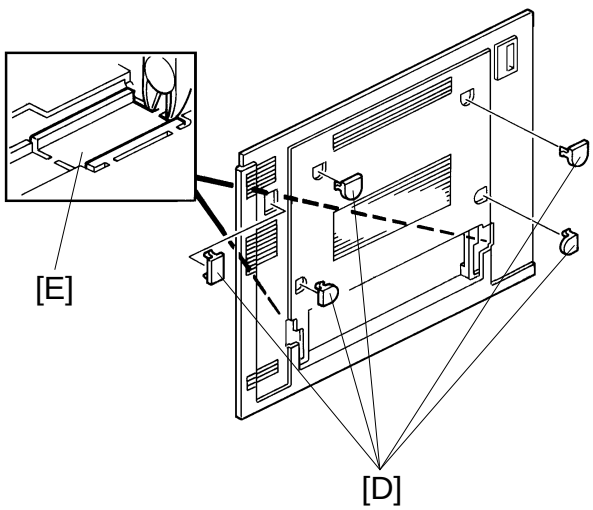

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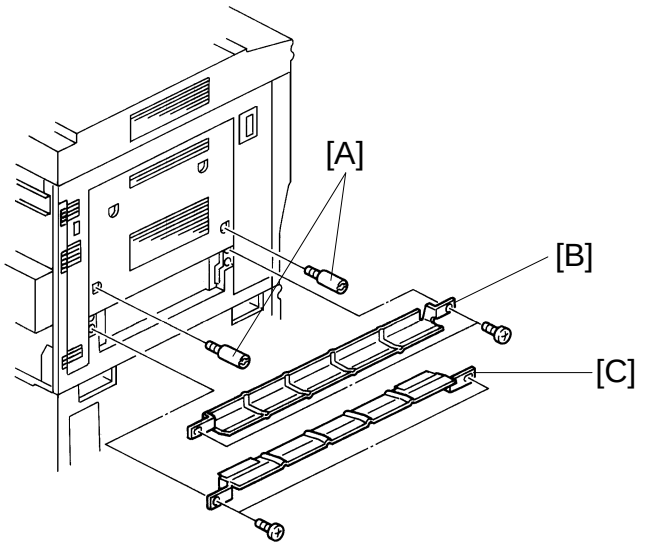
3. Remove the upper rear cover [A] (4 screws).
4. Open the front doors, then remove the left inner cover [B] (1 screw).
5. Remove the upper left cover [C] (4 screws).
6. Remove the 5 caps [D].
7. Remove the portion of the cover [E] with cutting pliers as shown.
8. Reinstall the upper left cover.



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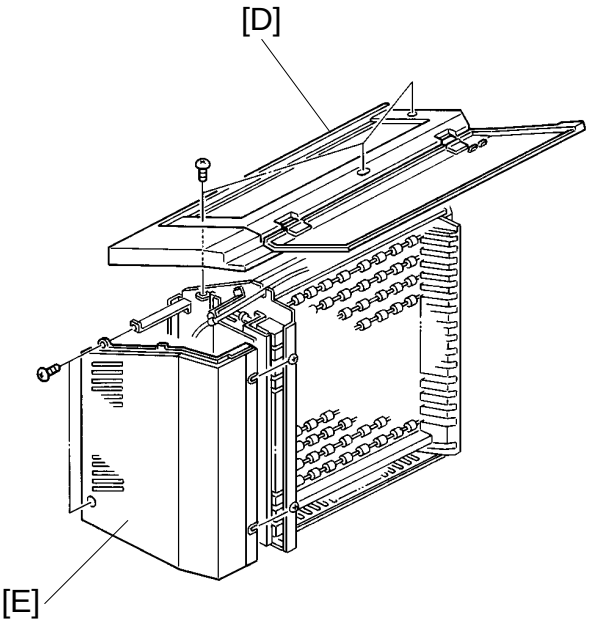

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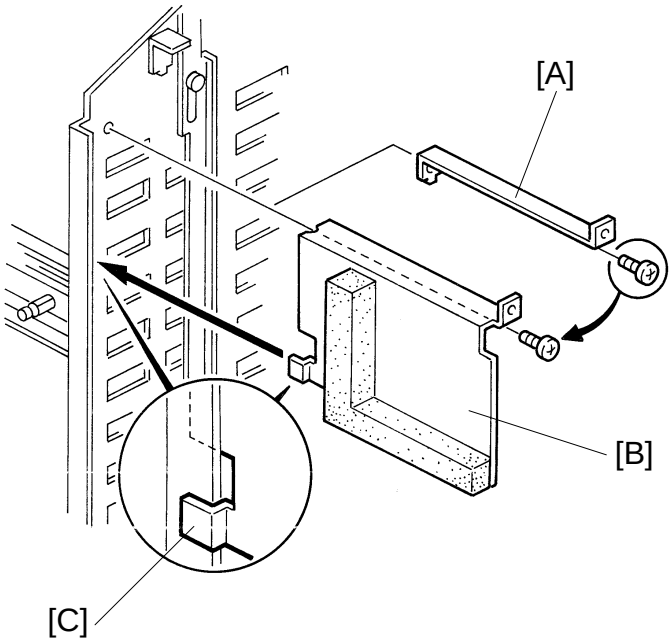
9. Install the studs [A].
10. Install the upper guide plate [B] (2 screws).
11. Install the lower guide plate [C] (2 screws).
12. Remove the sorter top cover [D] (3 screws).
13. Remove the sorter rear cover [E] (4 screws).
14. Remove the sorter front cover (2 screws).



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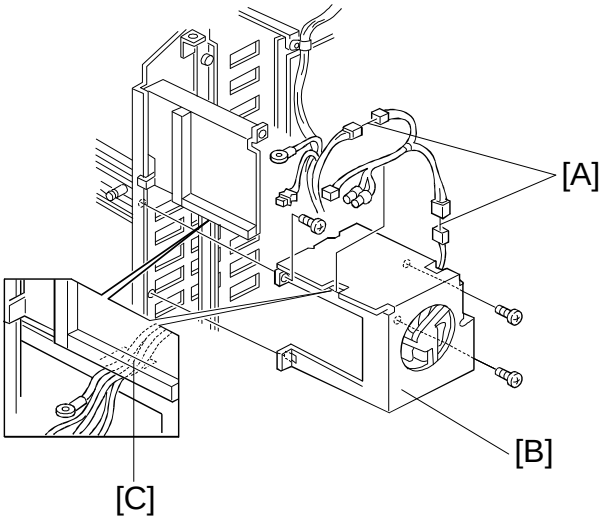
15. Remove the rear cover mounting bracket [A] (1 screw).
16. Install the air outlet plate [B] where the rear cover mounting bracket was previously installed (1 screw). Use the screw which was used for the rear cover mounting bracket.

    NOTE: Make sure the air outlet plate hook [C] engages the sorter rear frame as shown.



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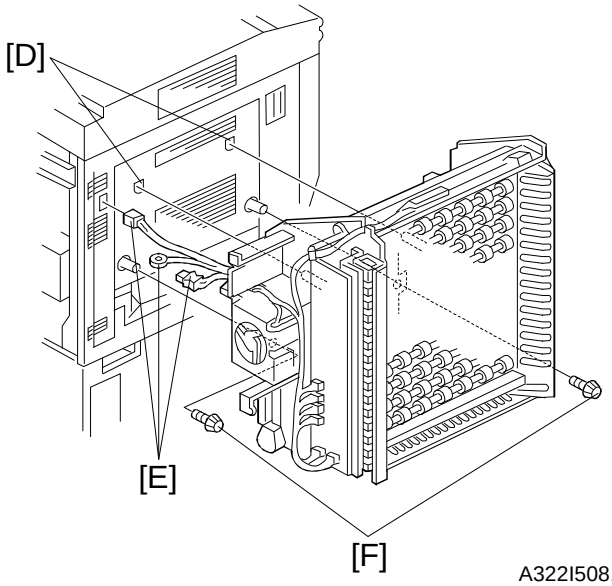

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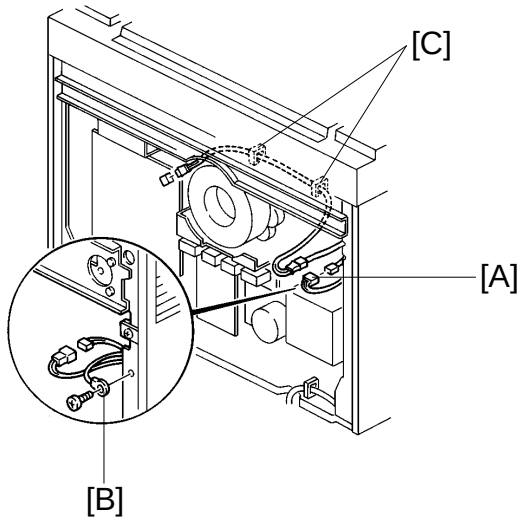
17. Connect the accessory harness connectors [A] to the fan assembly connectors.
18. Install the fan assembly [B] on the sorter rear frame (3 screws and 1 connector).

    NOTE: Make sure to run the harness through the cutout [C] as shown.
19. Install the sorter into the mounting holes [D] on the copier while inserting the sorter harnesses [E] through the opening in the left cover (connect the 2 studs of the copier to the sorter).
20. Attach the sorter to the copier with two screws (2 knob screws [F]).



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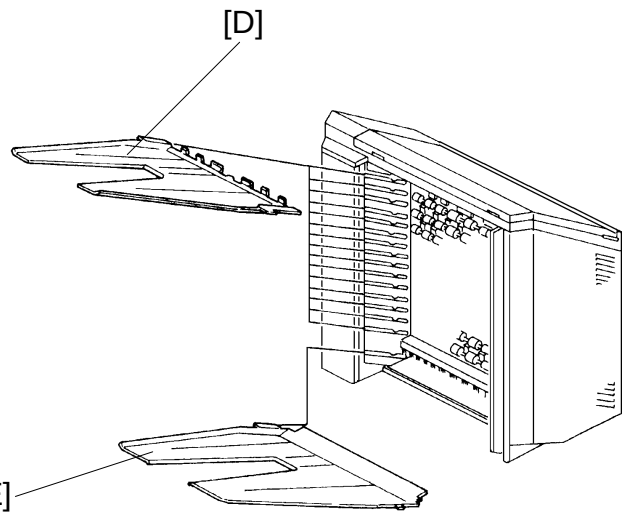

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21. Remove the protective cover and secure the 4p connector [A].
22. Secure the grounding wire [B]* (1 grounding screw with toothed washer).

    NOTE*: For all models other than those intended for North America, the green wire is intended as a functional earth and should be connected as shown.
23. Install two wire clamps [C].
24. Connect the fiber optics connector to CN515 of the main control board.
25. Insert all 15 sorter bins [D].
26. Insert the interrupt bin [E].
27. Install all covers on the copier and the sorter.
28. Check machine operation.

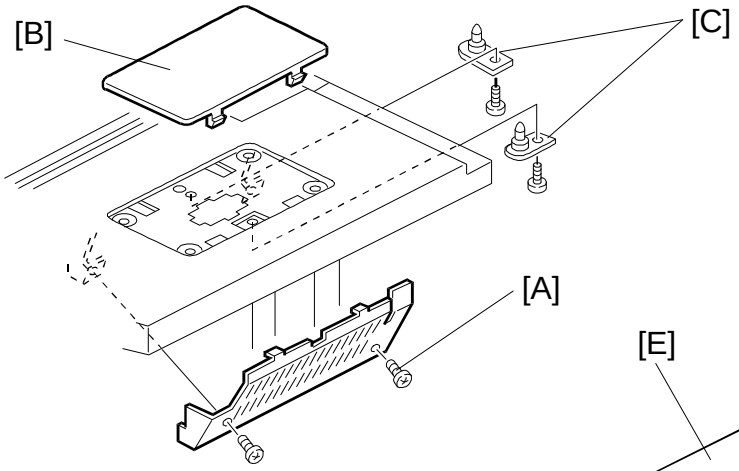
5. FILM PROJECTOR (A718)

5.1 ACCESSORY CHECK

Make sure that each accessory listed in the following table is in the box. Also check the condition of each item.

Description	Q'ty
1. Mirror Unit	1
2. Power Cord	1
3. Optical Fiber Cable	1
4. Film Strip Holder	1
5. Slide Holder	1
6. Glass Mount Holder	1
7. Base Film (FUJI, KODAK, AGFA)	3
8. Slide Mount	1
9. Correction Filter (P, N)	2
10. Blower Brush	1
11. Projection Lamp	1
12. Film Position Sheet	2
13. Positioning Pin	2
14. Spacer	4
15. Philips Pan Head Screw - M4 x 8	2
16. Philips Pan Head Screw - M4 x 12	4
17. Spring Washer - M4	1
18. Installation Procedure	1
19. NECR (-17, -27 only)	1

5.2 INSTALLATION PROCEDURE



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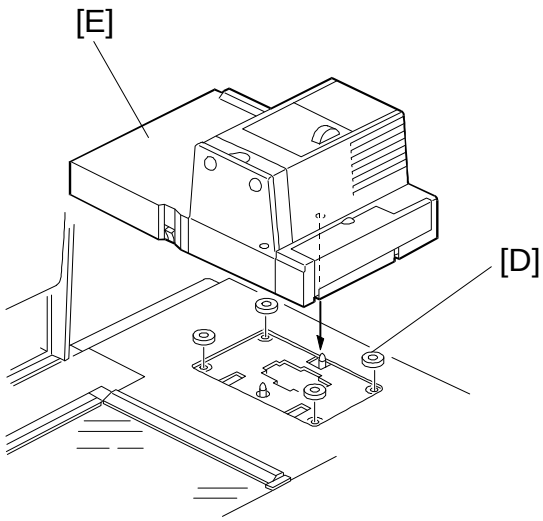

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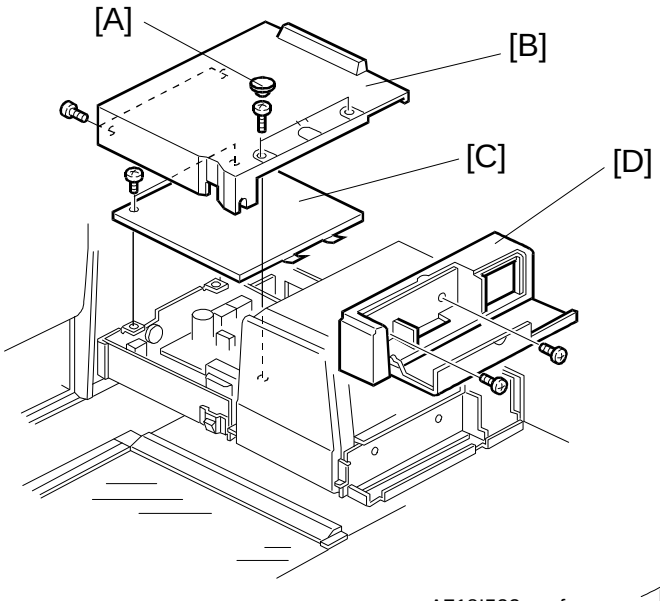
NOTE: Holder Type C (A702-18) must be installed before starting the following procedure.

1. Remove the lower cover [A] from the holder bracket (2 screws).
2. Remove the cover plate [B] from the holder.
3. Install two positioning pins [C] on the holder bracket as shown (2 screws - M4 x 8) and reinstall the lower cover.
4. Set four spacers [D] at the four corners on the hollow surface of the holder.
5. Place the projector unit [E] on the holder by aligning the holes of the projector base plate with the positioning pins.



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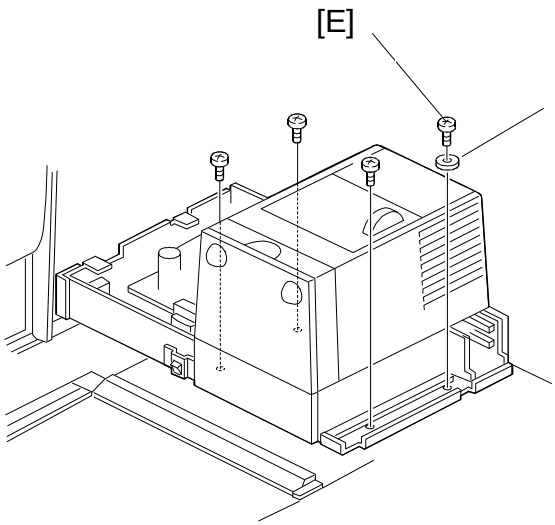

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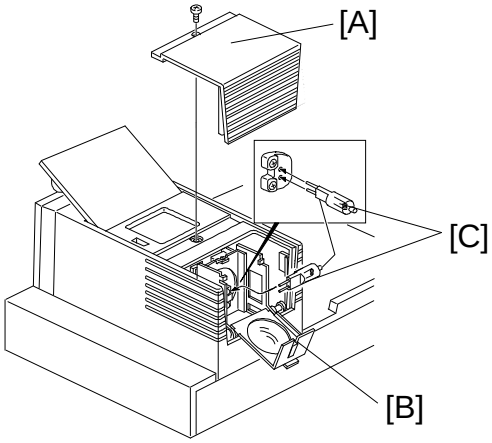
6. Remove two rubber caps [A] and cover [B] (4 screws).
7. Remove the shield plate [C] (2 screws).
8. Open the front cover and remove the front cover assembly [D] (2 screws).
9. ttach the projector unit to the holder with screws (M4 x 12).

NOTE: When securing the screw [E], insert the spring washer [F] between the screw and the projector unit. This spring washer secures the grounding of the projector unit's frame.



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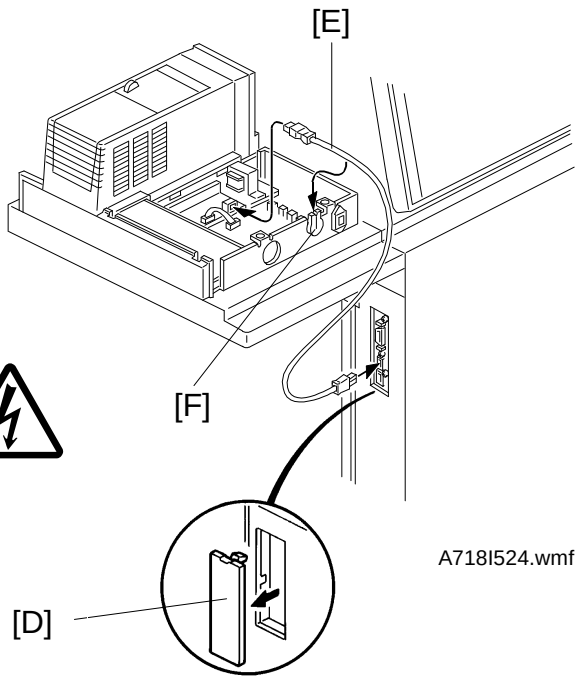

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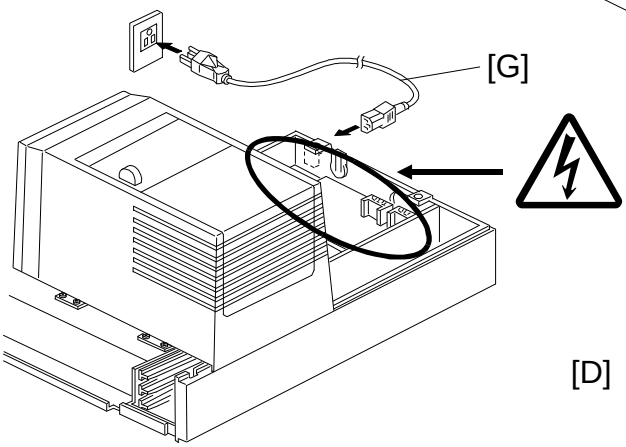

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10. Remove the lamp cover [A] (1 screw) and open the reflector cover [B]. Then, plug the projector lamp [C] into the socket. Then close the reflector cover.

    NOTE: The projector lamp should be inserted horizontally until it stops.

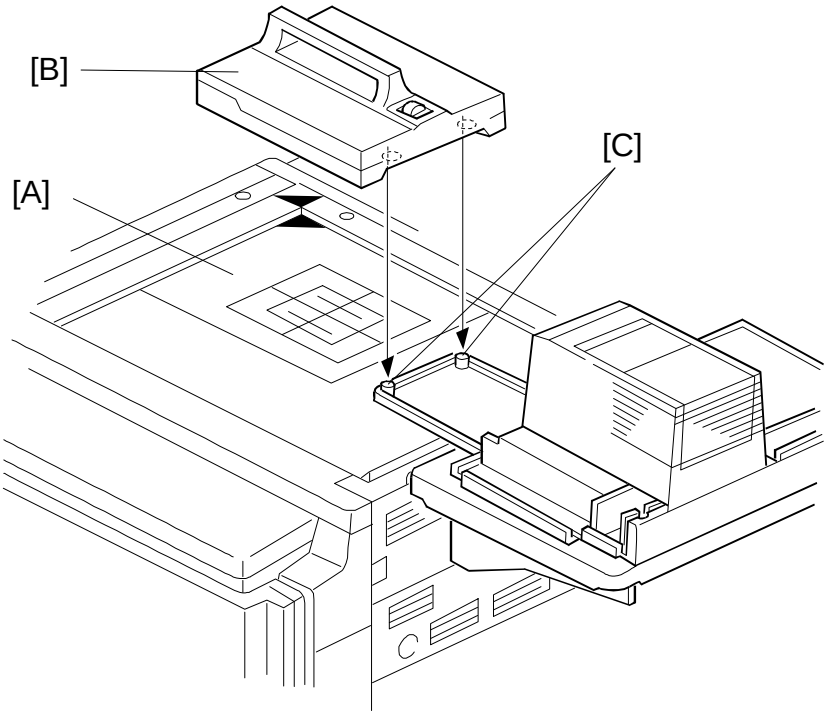
11. Remove the cap [D] from the upper right cover of the copier.

12. Run the optical fiber cable [E] between the projector control board (CN6) and the copier through the rubber bushing [F] as shown.

13. Connect the power cord [G] to the power inlet and plug it into the wall outlet.

⚠ WARNING

After plugging the power cord into the wall outlet, do not touch the electrical components inside the projector unit other than the test switch used in steps 14-4) and -8). Otherwise, you might receive an electrical shock. ⚠



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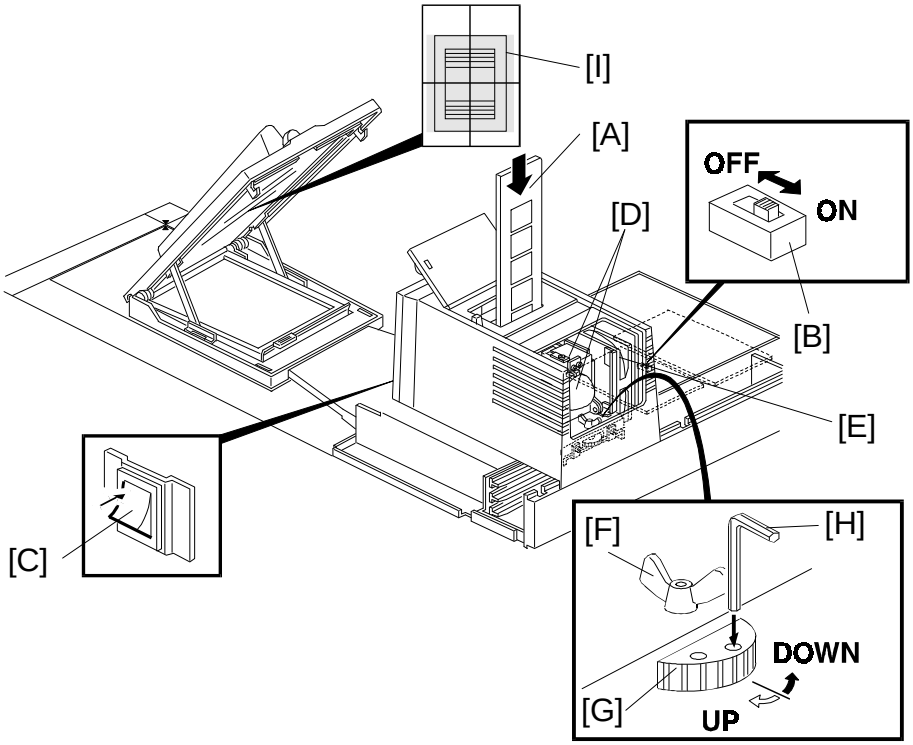
14. Adjust the height as follows.
    1) Place the film position sheet [A] on the exposure glass, aligning it at the rear left corner.
    2) Put the mirror unit [B] on the exposure glass by aligning the holes with the positioning pins [C] on the lens cover.



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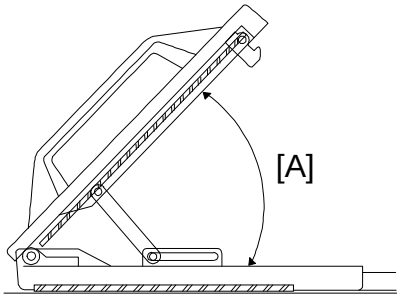
3) Insert the film strip holder [A] into the film projector unit at the base film setting position.
   NOTE: Push the film strip holder gently to confirm that the film strip holder has been inserted correctly.

4) Turn on the test switch [B] on the projector control board and turn on the projector unit main switch [C].

⚠ CAUTION

The lamp housing and reflector [D] will become very hot. The lamp cooling fan [E] will start turning suddenly when the lamp housing temperature becomes high. Keep hands away from those components to avoid any injury.

5) Loosen the wing nut [F].
6) Adjust the position of the projected light by turning the dial [G] with a hexagon wrench [H] until it is at the center of the 4" x 5" frame [I] which is reflected in the mirror unit.
7) Tighten the wing nut [F].
8) Turn off the projector main switch and the test switch.
9) Reinstall the lamp cover and other covers.



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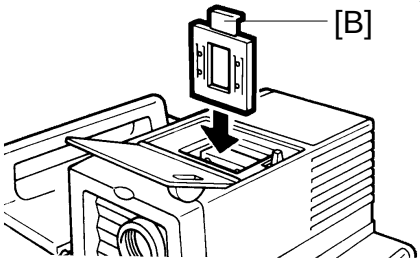

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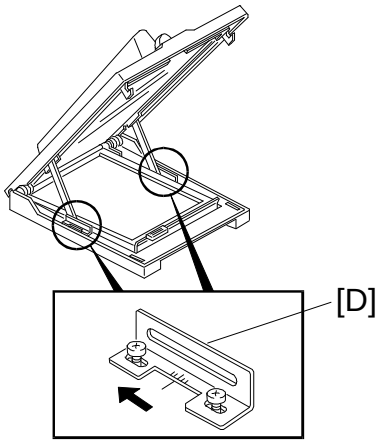

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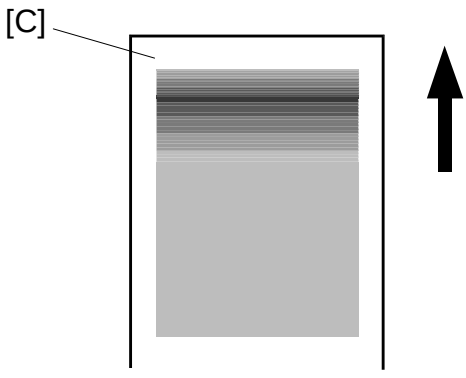

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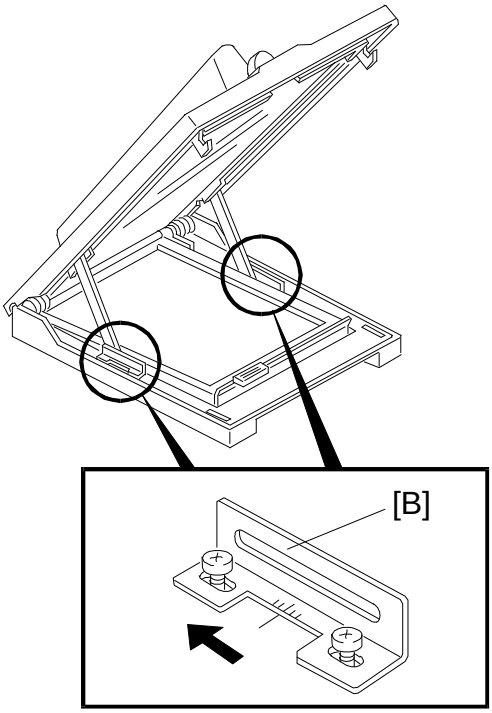
15. Adjust the angle [A] of the mirror unit as follows:
    1) Turn on the copier main switch and wait for the ready condition.
    2) Open the lens cover and position the mirror unit on the exposure glass.
    3) Put the correction filter [B] for positive films in the filter slot.
    4) Turn on the projector main switch and press the option key.
    5) Perform shading using the positive 35 mm slides mode.
    6) Put one of the orange base films in the slide holder and position it in the projector unit.
    7) Make a copy of the orange film.
    8) Check if the orange image is even or not. If the image is uneven, adjust the mirror angle as follows:
        8-1) When the leading part is dark [C].
            a) Move the front and rear arm guides [D] to the left so that the mirror angle is increased (2 screws each).
            NOTE: Position the arm guides at the same location at front and rear, using the ruler decals. This prevents the mirror from being twisted.
            b) Make a copy of the orange film.
            c) Repeat steps a) and b) until the orange image becomes even.



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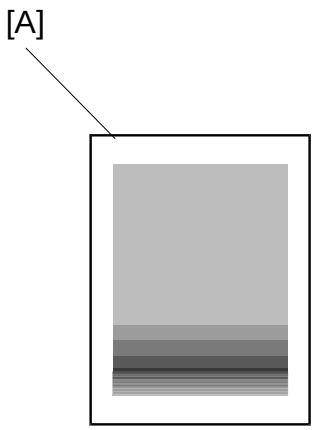

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8-2) When the trailing part is dark [A].
a) Move the front and rear arm guides [B] to the right so that the mirror angle is reduced (2 screws each).
NOTE: Position the arm guides at the same location at front and rear, using the ruler decals. This prevents the mirror from being twisted.
b) Make a copy of the orange film.
c) Repeat steps a) and b) until the orange image becomes even.

16. Check some copy images from positive or negative films.

6. CONTROLLER INTERFACE TYPE-C (A583-05)

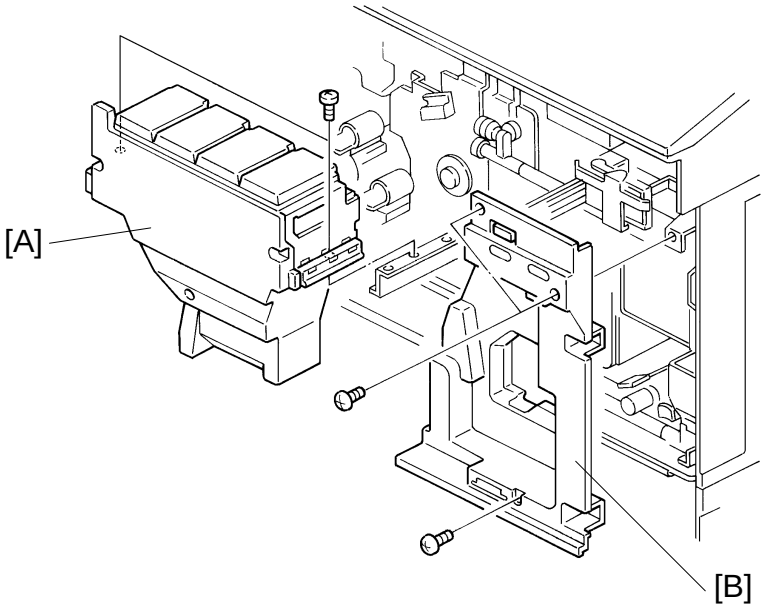
6.1 ACCESSORY CHECK

Make sure that each accessory listed in the following table is in the box. Also check the condition of each item.

Description	Q'ty
1. Controller Interface Board	1
2. PTL	1
3. Controller Interface Harness	1
4. Fuse Harness	1
5. Stepped Screw - M3	1
6. Philips Pan Head Screw - M3 x 8	1
7. Philips Pan Head Screw - M4 x 8	6
8. Wire Saddle	2
9. Ferite Core	2
10. Fiber Optics Cable	1
11. PTL Relay Harness	1
12. Installation Procedure	1

6.2 INSTALLATION PROCEDURE

1. Remove the covers.



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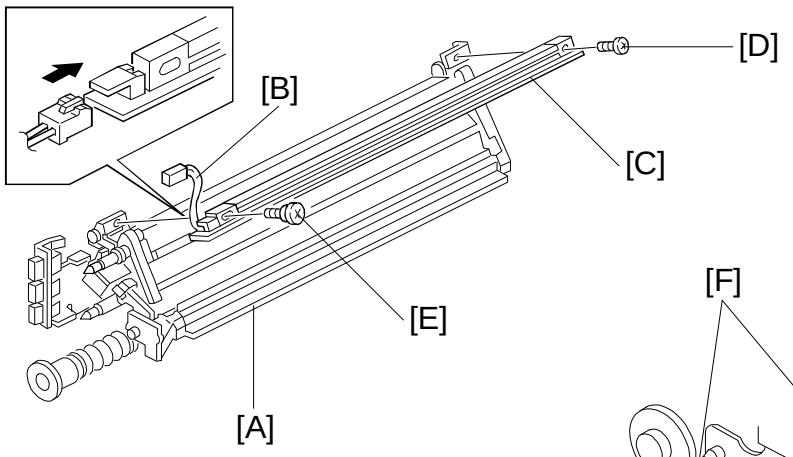
⚠ CAUTION

Turn off the main switch and unplug the machine before starting the following procedure.

1. Open the front doors and remove the toner tank unit [A] (2 screws).
2. Remove the right inner cover [B] (3 screws).
3. Remove the upper rear cover (4 screws).
4. Remove the lower rear cover (4 screws).

2. Attach the PTL (Pre-Transfer Lamp) to the belt cleaning unit.



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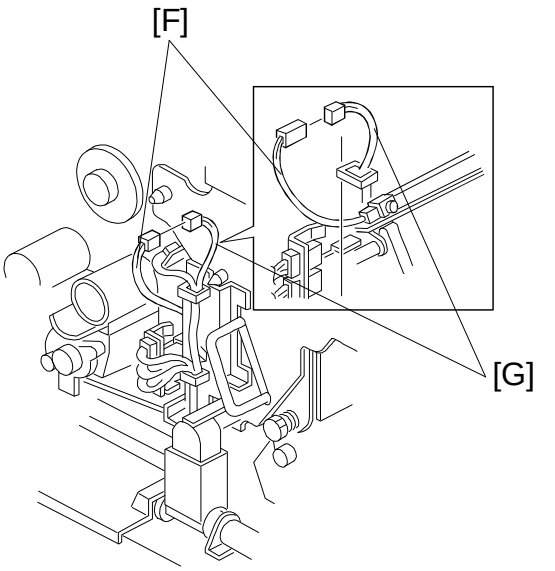

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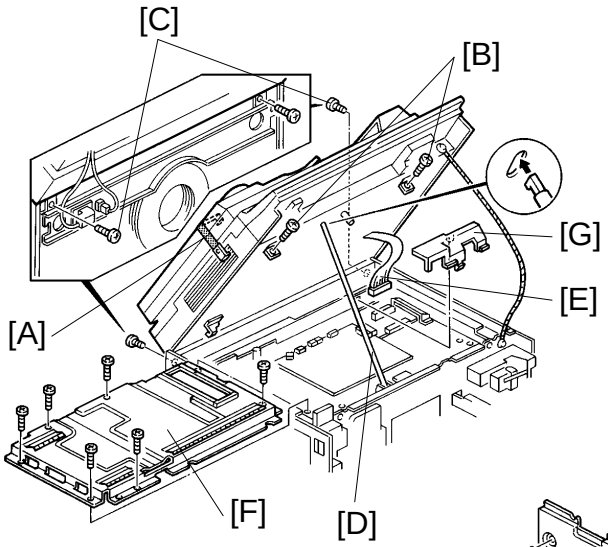
1. Lower the toner collection duct (1 hook).
2. Disconnect the three connectors and free them from the three harness clamps.
3. Remove the transfer belt stay (5 screws).
4. Remove the belt cleaning unit [A] by pulling it out.
5. Connect the PTL relay harness [B] (from the kit) to the PTL [C].
6. Attach the PTL [C] to the cleaning unit [A]
   (M3 x 8 [D] ,stepped screw - M3 [E]).
7. Reinstall the belt cleaning unit.
8. Reinstall the transfer belt stay (5 screws, 3 connectors and 3 clamps).
9. Connect the PTL relay harness [F] to the PTL harness [G] (from the copier).
10. Reinstall the toner collection duct (1 hook).

3. Install the interface board and harness.



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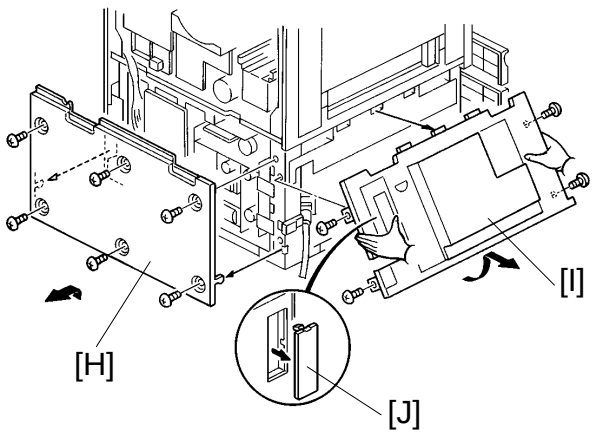

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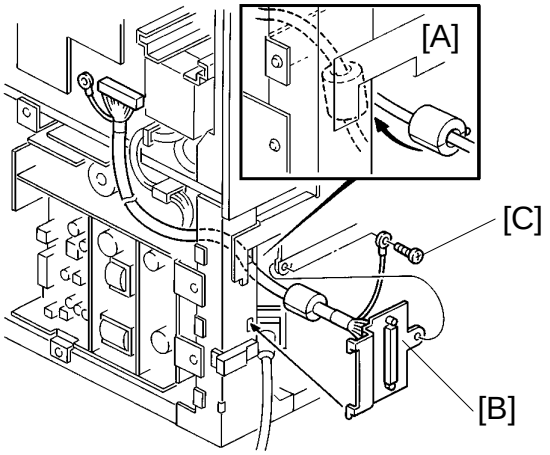
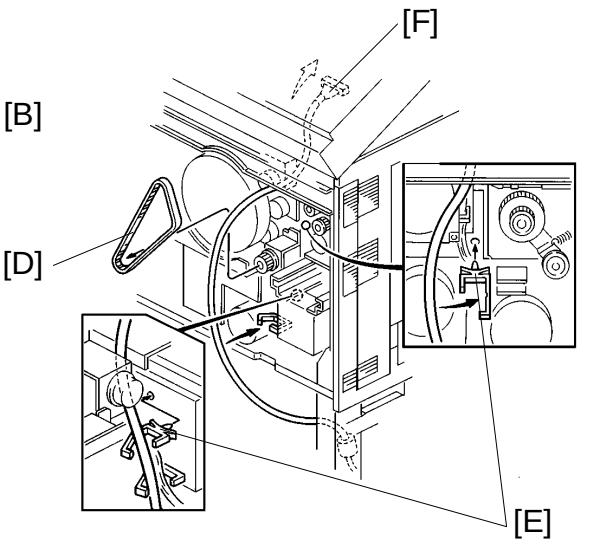
1. If the DJF is equipped on the copier, secure the DJF to the scanner unit with the DJF fixing belt [A] as shown.
   If the Film Projector Unit is installed on the copier, remove the mirror unit.
2. Remove the two fixing screws [B] at the front of the scanner unit.
3. Remove the two fixing screws [C] at the rear of the scanner unit.
4. Open the scanner unit and set the scanner support bar [D] as shown.
5. Disconnect the shielded flat cable [E] and remove the IPU board cover [F] (2 long and 5 short screws).
6. Remove the harness cover [G] from the right rear corner.
7. Remove the lower rear cover [H] (6 screws) and the lower left cover [I] (4 screws). Then remove the cap [J] from the lower left cover.



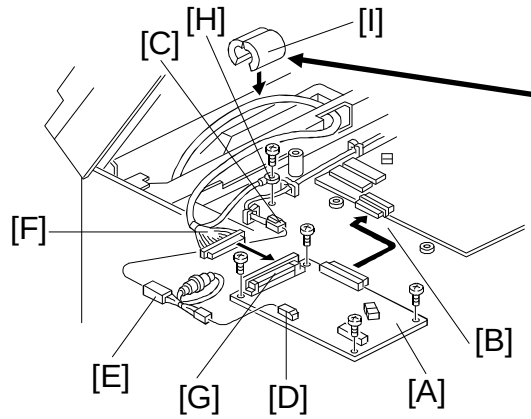
A583I505.img



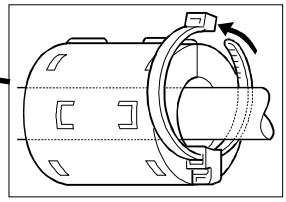
A583I506.img

8. Route the harness above the left rail of the 1st tray [A] from the left side to the rear.
9. Place the controller interface harness bracket [B] on the left side frame and secure it with the grounding wire (1 screw) [C].
10. Remove the timing belt [D] and install the two harness clamps [E].
11. Route the harness from the lower to the upper as shown [F].

    NOTE: Route the harness behind the charge inlet fan duct.

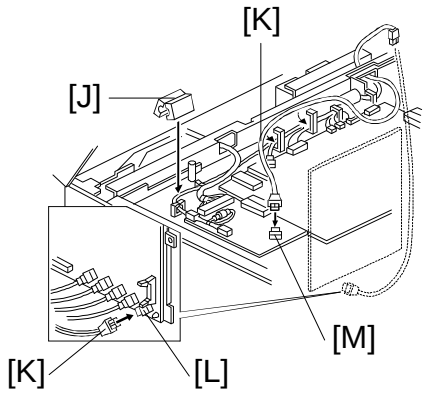


A583I507.wmf

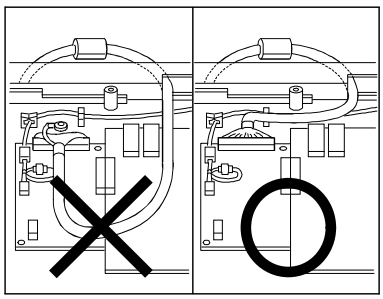


[Fig. 2]

A583I508.wmf



A583I510.wmf



[Fig. 1]

A583I509.wmf

12. Install the controller interface board [A] by connecting it to CN308 [B] of the IPU board (4 screws).
13. Connect the white 2P connector [C] to CN301 [D] of the controller interface board via the fuse harness [E].
14. Connect the controller interface harness [F] to CN303 [G] of the controller interface board. Then secure the grounding wire [H] to the IPU board bracket (1 screw).

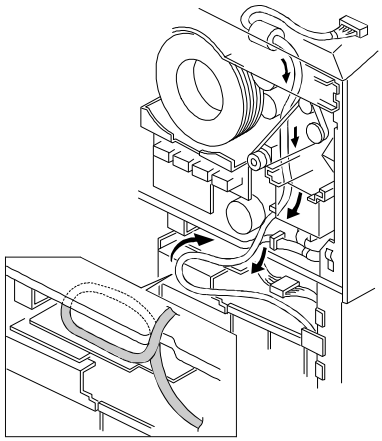
    NOTE: 1. Do not route the harness over the board to prevent electromagnetic wave. (See [Fig. 1])

    2. Make sure that the connectors are set properly. Otherwise, the copier might not achieve the ready condition or blank copies might be made.

15. Install the gray ferrite core [I] and the white ferrite core [J] as shown.

    NOTE: Secure the gray ferrite core with the harness band as shown [Fig. 2].

16. Connect the fiber optics cable [K] to CN514 [L] on the main control board and route it to the IPU board area following other fiber cables.
17. Run the fiber optics cable through the harness clamps and connect it to CN304 [M] on the controller interface board.



A583I511.wmf

18. Secure the interface harness with the three harness clamps and reinstall the timing belt as shown.

    NOTE: Route the remaining part of the harness along the top of the AC/DC Drive Board as shown. Position the harness near by the rear side plate so that the harness won't touch any moving parts such as timing belts and motors.

19. Reassemble the machine.

4. Connect to the Fiery and adjust the printer gamma.

1. Connect the Fiery controller to the controller interface connector with the cable provided from EFI.
2. Adjust the γ correction data for printer (See Section 5) and check the controller function.

SECTION 4

SERVICE TABLES

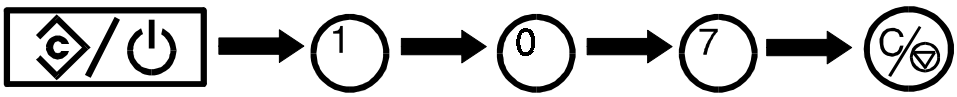
1. SERVICE PROGRAM MODE

1.1 SERVICE PROGRAM MODE OPERATION

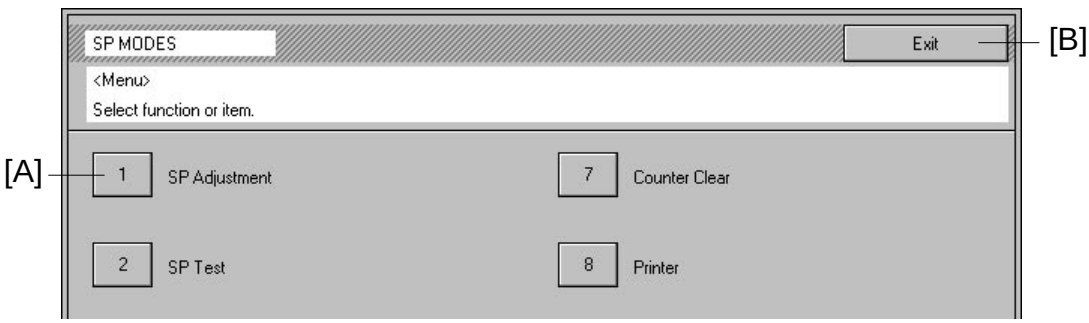
The service program (SP) mode is used to check electrical data, change modes, and adjust values.

1.1.1 Service Program Access Procedure

1. Press the clear modes key.
2. Enter "107".
3. Hold down the clear/stop key for more than 3 seconds until the service program index menu appears on the touch panel display.



4. Touch a number [A] on the display to access the desired function. This copier has 9 service program modes.



1.1.2 To Exit SP Mode

1. Touch the Exit key [B].

1.1.3 To Return to the Index Menu

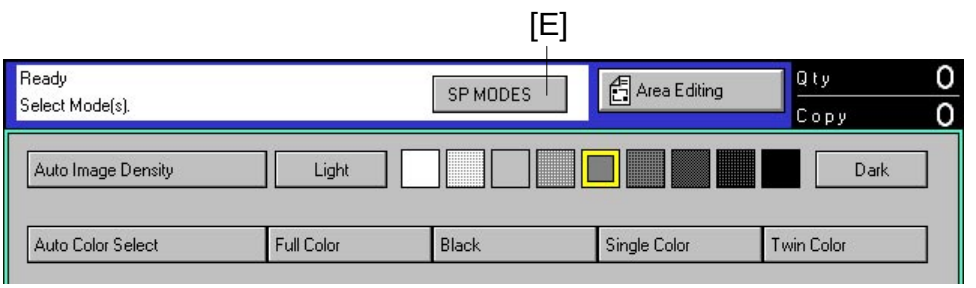
1. Return to the index menu by touching Index [A] on the display.

1.1.4 Change the Menu Screen

1. To move to the next page, touch Next [B].
2. To move to the previous page, touch Prev. [C].

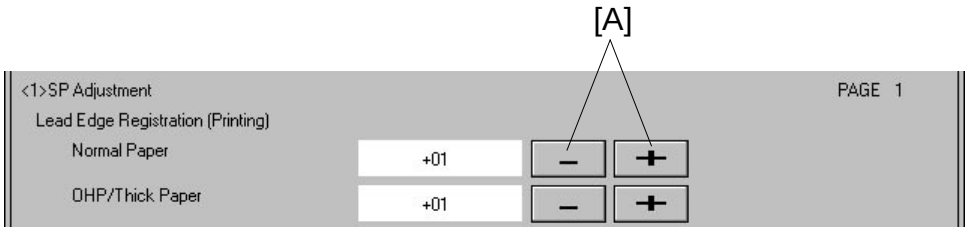
1.1.5 To Make a Copy While in SP Mode

1. Touch Copy in SP [D] to access "Copy in SP" mode. The LCD is as shown below.
2. Select the appropriate copy mode and make trial copies.
3. Return to the SP mode by pressing SP mode [E].

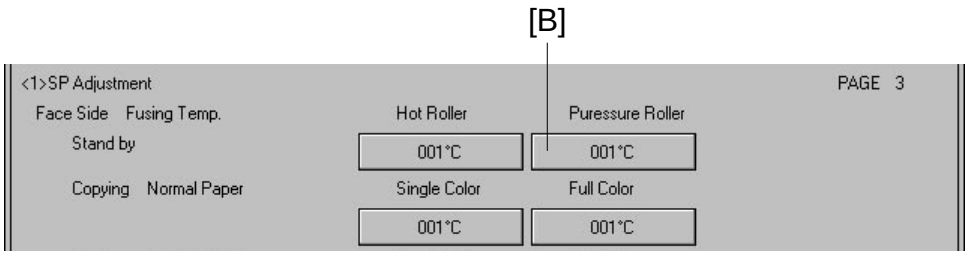


1.1.6 To Input Settings

If [+] and [−] keys [A] are displayed as shown, touch the [+] key or [−] key to change the setting. In this case, the default setting is 00.



If the keys display numbers, as shown:

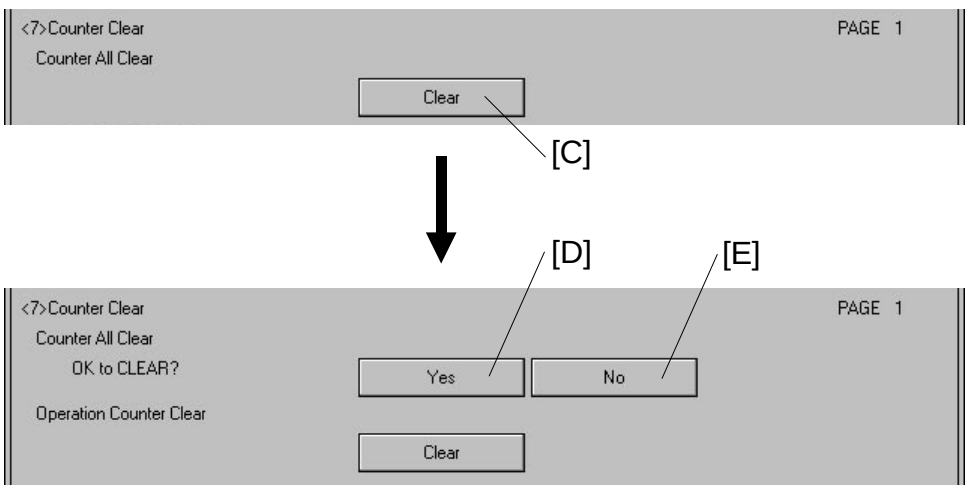


1) Touch the key [B]. Its color will change.
2) Input the setting with the numeric keys.
3) Touch the key [B] again to store the setting.

NOTE: If you forget to touch key [B] again, the setting will not be changed.

1.1.7 To Clear the Counters

1. Touch the clear key [C].
2. To clear the counter, touch the [Yes] key [D].
   To cancel without clearing the counter, touch the [No] key [E].

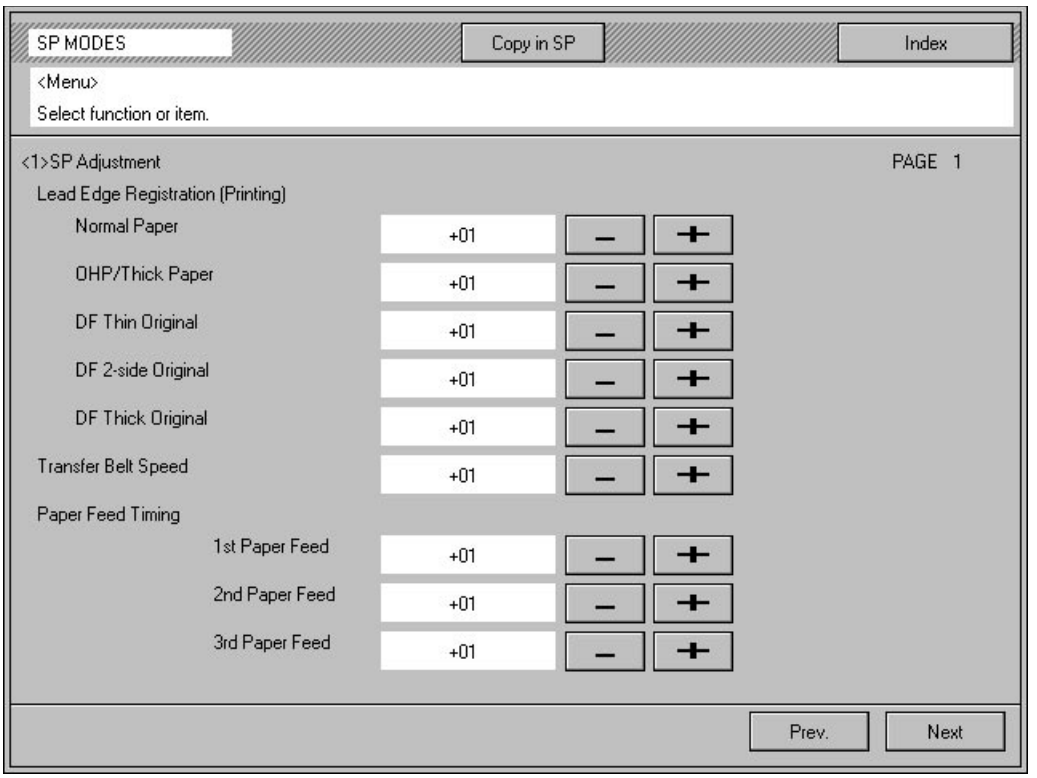


Service Tables

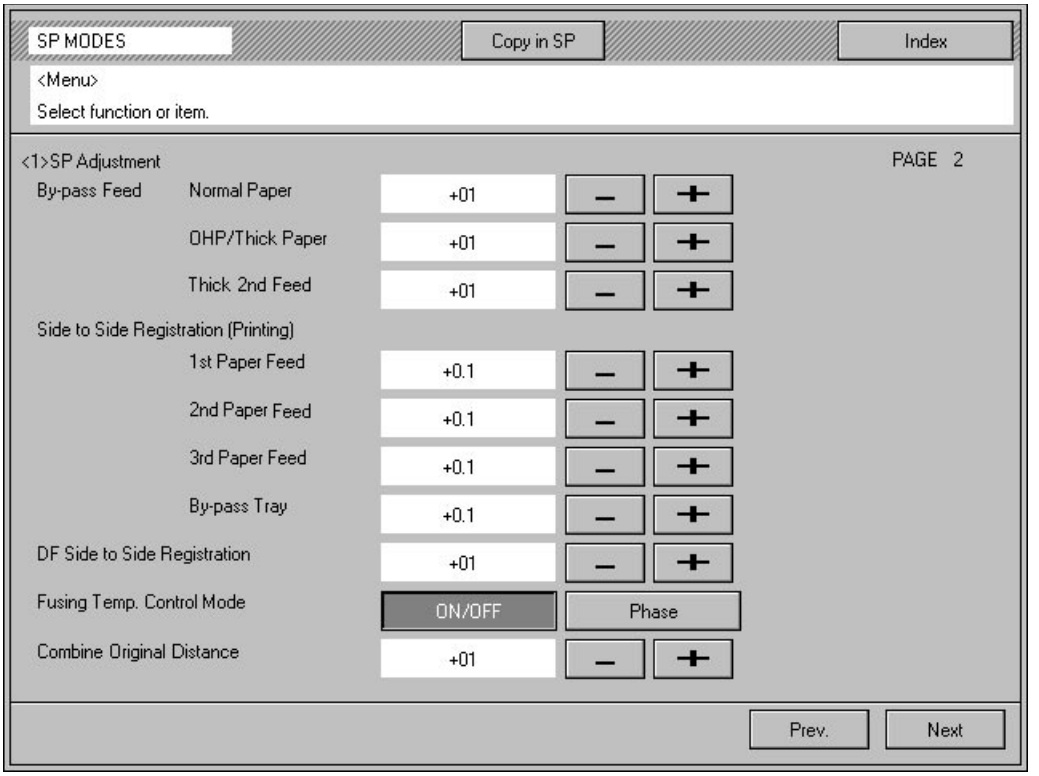
1.2 SERVICE PROGRAM MODE TABLE

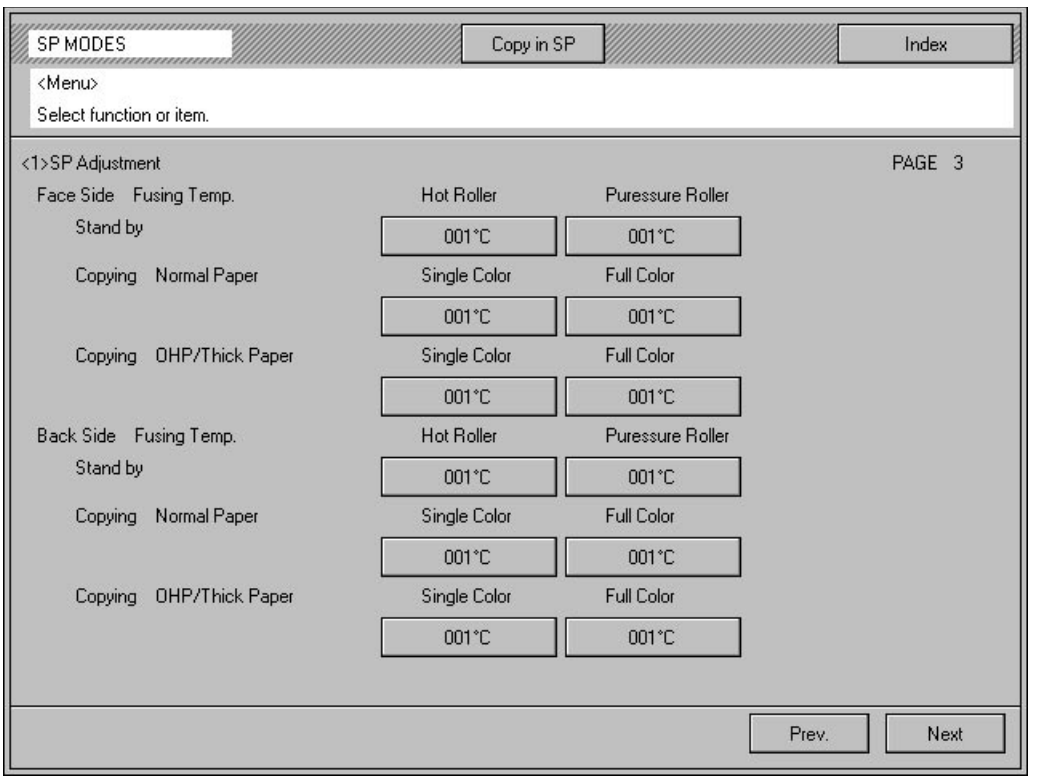
NOTE:
- Shaded items should not be adjusted in the field.
- Items written in ***bold italic letters*** are newly added service programs to the base copier (DFC-Alpha).
- The SP mode screens are sample ones. The values in these screens are not realistic.
  Refer to the Default in Note column or the factory data sheet coming with the machine for the realistic values.

1.2.1 [1] SP ADJUSTMENT

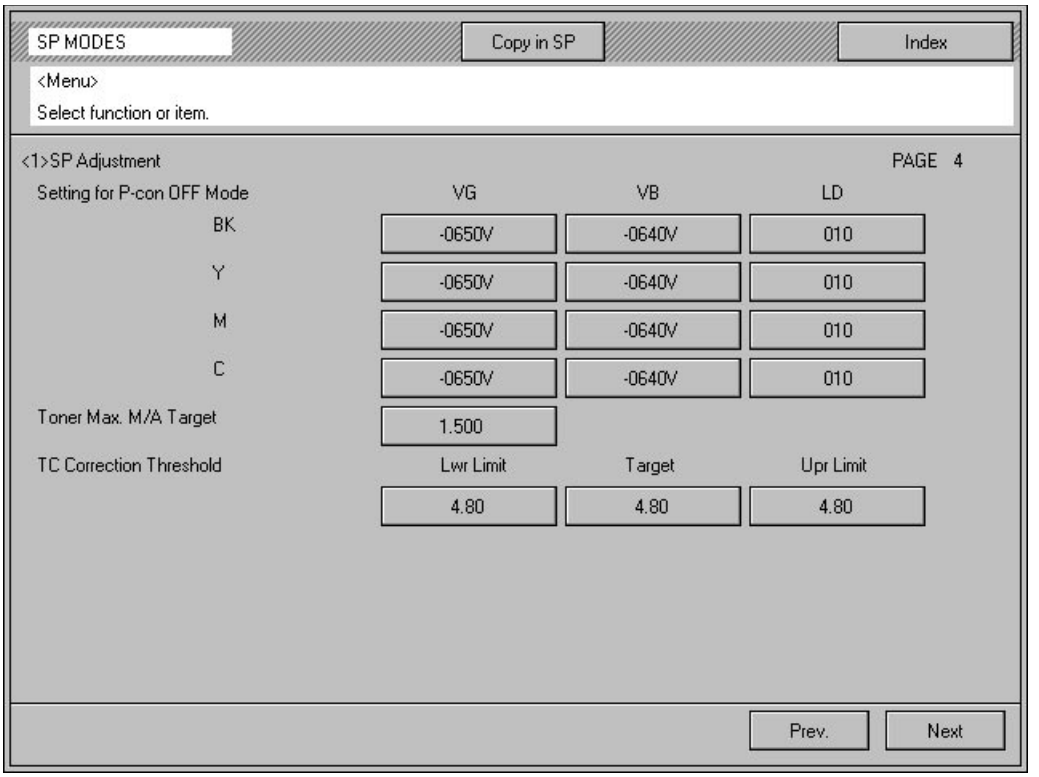


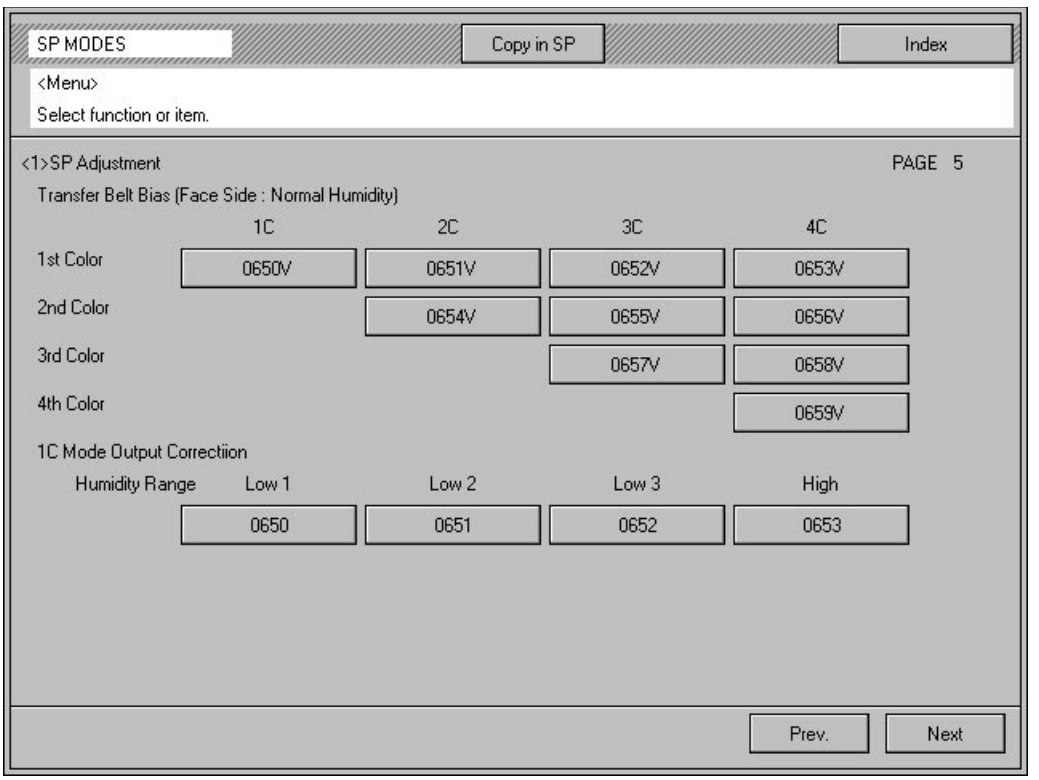
Page	Item	Function	Note
<1> -1	Lead Edge Registration (Printing)	Shifts the vertical image position by changing the ON timing of the registration clutch. (0.5 mm/step) * Normal paper: Transfer belt speed = 180 mm/s * OHP/Thick Paper: Transfer belt speed = 90 mm/s **** DF Thin Original:*** Adjusts the one-sided original's stop position without moving the original in reverse against the left scale. **** DF 2-side Original:*** Adjusts the two-sided original's stop position against the left scale after inversion. **** DF Thick Original:*** Adjusts the one-sided original's stop position after moving the original in reverse against the left scale.	Evaluate the width of the blank area at the leading edge of the test pattern image. (Use trimming area mode in test mode, page 2.) Adjustment standard: 0 ± 2 mm (2 ± 2 mm in Trimming area mode) For the following adjustment, the dip switches of the DJF should be in the Normal position. Enter the standard copy screen by pressing the "Copy in SP" key, select a suitable mode, feed the original from the DJF original tray by pressing the "Start" key, then check the original stop position by opening the DJF. **** DF Thin Original: 1-sided*** The thin original mode should be selected with user tools. [–]: Towards the left scale [+]: Away from the left scale **** DF 2-side Original*** Duplex mode (2S → 1S) should be selected for this adjustment. Overlap amount with the left scale: [–] Increase, [+] Decrease **** DF Thick Original:*** The thick original mode should be selected with user tools. Overlap with the left scale: [–] Increase, [+] Decrease
	Transfer Belt Speed	Changes the transfer belt rotation speed (0.19%/step)	Default: 0 **Do not change the setting in the field**
	Paper Feed Timing	Changes the paper feed clutch on time for each paper feed station to adjust the paper buckle at the registration rollers. (0.1 mm/step)	Adjustable range: –9.9 ~ 9.9 mm


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<1>SP Adjustment
PAGE 2
By-pass Feed
Normal Paper
+01
OHP/Thick Paper
+01
Thick 2nd Feed
+01
Side to Side Registration (Printing)
1st Paper Feed
+0.1
2nd Paper Feed
+0.1
3rd Paper Feed
+0.1
By-pass Tray
+0.1
DF Side to Side Registration
+01
Fusing Temp. Control Mode
ON/OFF
Phase
Combine Original Distance
+01
Prev.
Next

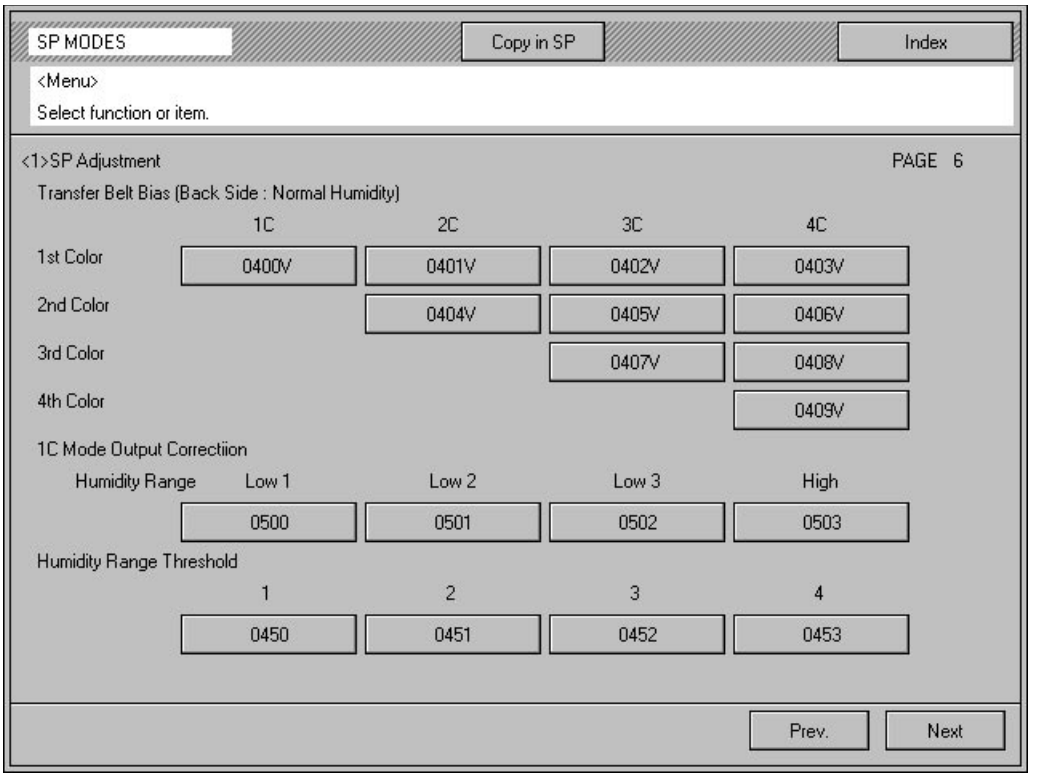

SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<1>SP Adjustment
PAGE 3
Face Side Fusing Temp.
Hot Roller
Puressure Roller
Stand by
001°C
001°C
Copying Normal Paper
Single Color
Full Color
001°C
001°C
Copying OHP/Thick Paper
Single Color
Full Color
001°C
001°C
Back Side Fusing Temp.
Hot Roller
Puressure Roller
Stand by
001°C
001°C
Copying Normal Paper
Single Color
Full Color
001°C
001°C
Copying OHP/Thick Paper
Single Color
Full Color
001°C
001°C
Prev.
Next

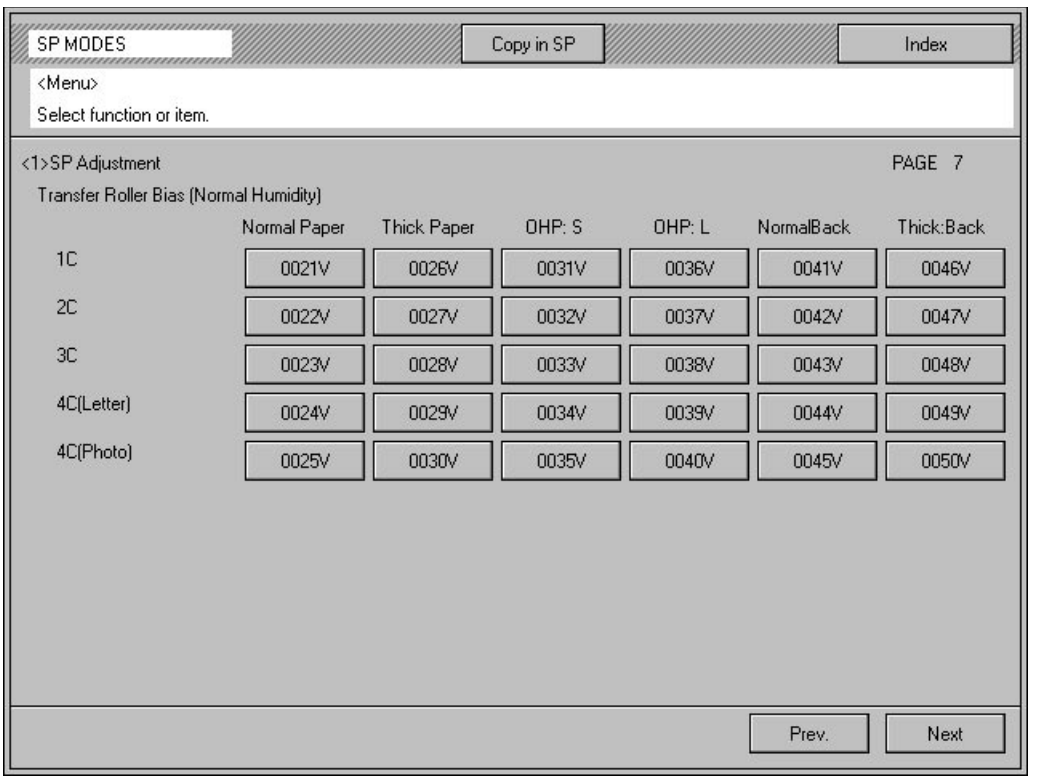
Page	Item	Function	Note
<1> -2	By-pass Feed	*** Normal Paper** and *** OHP/Thick Paper** Changes the by-pass feed clutch on time for each paper kind to adjust the paper buckle at the registration rollers. (0.1 mm/step) *** Thick 2nd Feed** Adjusts the by-pass feed clutch ON timing for the 2nd time to ensure thick paper feeding from the registration rollers. (20 msec./step)	For by-pass feed, there are adjustments for normal paper, OHP, and thick paper mode. Adjustable range: –9.9 ~ 9.9 mm **Thick 2nd Feed** Default: 0 When the data is "0", the by-pass feed clutch turns on at the same time as the registration clutch. Increasing 1 step makes the on timing 20 msec. earlier. The off timing is fixed wich is the same as the pick-up solenoid.
	Side to Side Registration (Printing)	Adjusts the horizontal registration for the scanned image by adjusting the laser exposure start timing (0.1 mm/step)	Adjustable range: –9.9 ~ 9.9 mm
	DF Side to Side Registration	Adjusts the horizontal image position by changing the main scanning start position in DJF mode.	This adjustment should be done after the above adjustment "Side to Side Registration (Printing)" for each feeding station.
	Fusing Temp. Control Mode	Selects the fusing temperature control mode.	Default: ON/OFF control
	Combined Original Distance	Adjusts the distance between the two originals in Combine Originals mode.	Default: 0 Adjustment range: –15 ~ +15
<1> -3	Face Side Fusing Temp.	Adjusts the target temperature of the hot roller and the pressure roller in stand-by mode. Adjusts the hot roller's target temperature for copying normal and OHP/Thick paper. This is for the single side copy mode.	Default: Stand-by Hot roller: 180°C Pressure roller: 120°C Copying normal paper Single color: 160°C Full color: 170°C Copying OHP/Thick paper Single color: 170°C Full color: 170°C
	Back Side Fusing Temp.	Adjusts the target temperature of the hot roller and the pressure roller in stand-by mode. Adjusts the hot roller's target temperature for copying normal and OHP/Thick paper This is for the back side copy in the manual duplex mode.	Default: Stand-by Hot roller: 180°C Pressure roller: 120°C Copying normal paper Single color: 160°C Full color: 170°C Copying OHP/Thick paper Single color: 170°C Full color: 170°C


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<1>SP Adjustment
PAGE 4
Setting for P-con OFF Mode
VG
VB
LD
BK
-0650V
-0640V
010
Y
-0650V
-0640V
010
M
-0650V
-0640V
010
C
-0650V
-0640V
010
Toner Max. M/A Target
1.500
TC Correction Threshold
Lwr Limit
Target
Upr Limit
4.80
4.80
4.80
Prev.
Next

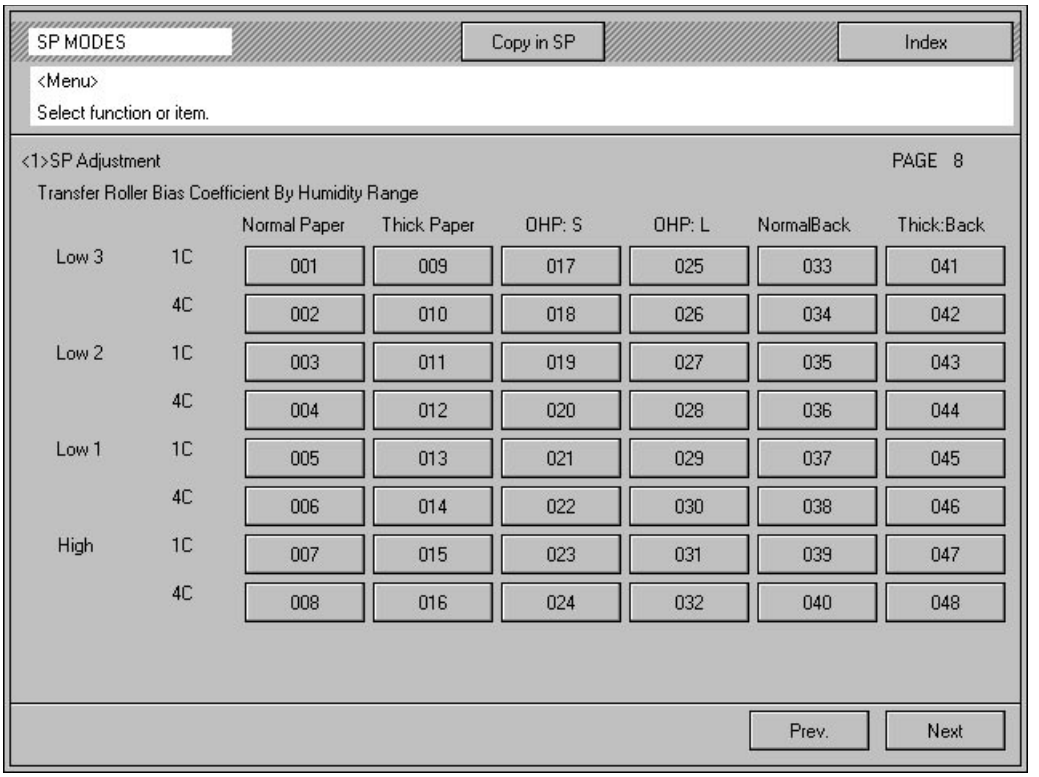

SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<1>SP Adjustment
PAGE 5
Transfer Belt Bias (Face Side : Normal Humidity)
1C
2C
3C
4C
1st Color
0650V
0651V
0652V
0653V
2nd Color
0654V
0655V
0656V
3rd Color
0657V
0658V
4th Color
0659V
1C Mode Output Correctiion
Humidity Range
Low 1
Low 2
Low 3
High
0650
0651
0652
0653
Prev.
Next

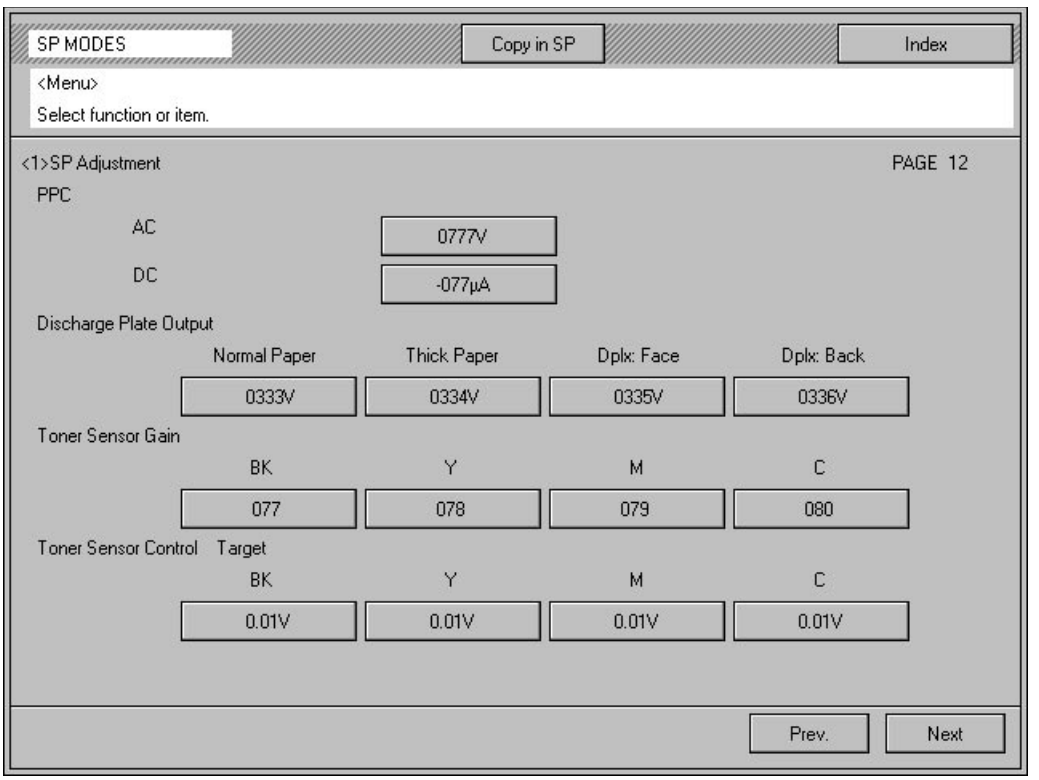
Page	Item	Function	Note
<1> -4	Setting P-con OFF Mode	Factory use only	**Do not adjust in the field.** Default:(for all the colors) VG: 650 V VB: 495 V ILD: 128
	Toner Max. M/A Target	Sets the maximum toner amount on the gradation patterns in the process control self check.	**Do not adjust in the field.** Default: 1.000 (= 1 mg/cm^2)
	TC Correction Threshold	Sets the threshold for the Vcnt correction.	**Do not adjust in the field.** Default: Upper limit: 3.8 Target: 3.5 Lower limit: 2.3
<1> -5	Transfer Belt Bias (Face Side: Normal Humidity)	Adjusts the transfer belt bias voltage for each transfer process in single side copy mode with normal humidity.	**Do not adjust in the field.** Default: 1C: 1410 2C: 1490 3C: 1575 4C: 1660 Adjustable range: 50 ~ 4000 V
	1C Mode Output Correction	Adjusts the 1C transfer belt bias voltage for unusual humidity ranges. This is for single side copy mode.	**Do not adjust in the field.** Default: Low 1: 2075 Low 2: 1740 Low 3: 1740 High: 1410


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<1>SP Adjustment
PAGE 6
Transfer Belt Bias (Back Side : Normal Humidity)
1C
2C
3C
4C
1st Color
0400V
0401V
0402V
0403V
2nd Color
0404V
0405V
0406V
3rd Color
0407V
0408V
4th Color
0409V
1C Mode Output Correctiion
Humidity Range
Low 1
Low 2
Low 3
High
0500
0501
0502
0503
Humidity Range Threshold
1
2
3
4
0450
0451
0452
0453
Prev.
Next

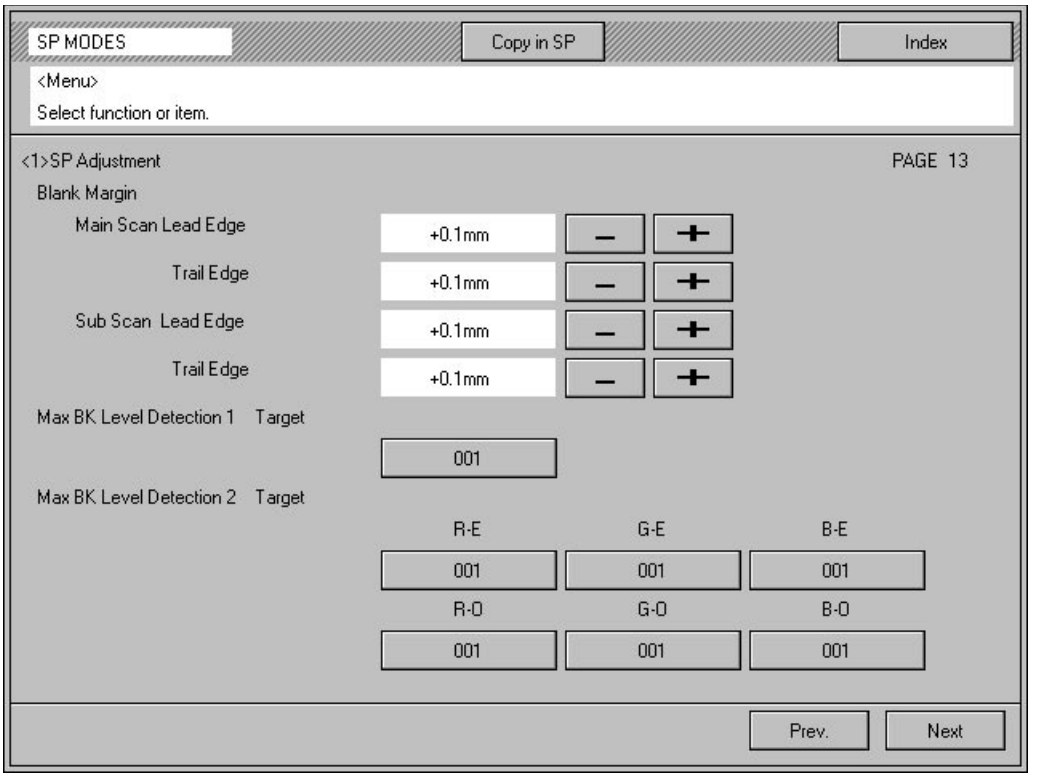

SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<1>SP Adjustment
PAGE 7
Transfer Roller Bias (Normal Humidity)
Normal Paper
Thick Paper
OHP: S
OHP: L
NormalBack
Thick:Back
1C
0021V
0026V
0031V
0036V
0041V
0046V
2C
0022V
0027V
0032V
0037V
0042V
0047V
3C
0023V
0028V
0033V
0038V
0043V
0048V
4C(Letter)
0024V
0029V
0034V
0039V
0044V
0049V
4C(Photo)
0025V
0030V
0035V
0040V
0045V
0050V
Prev.
Next

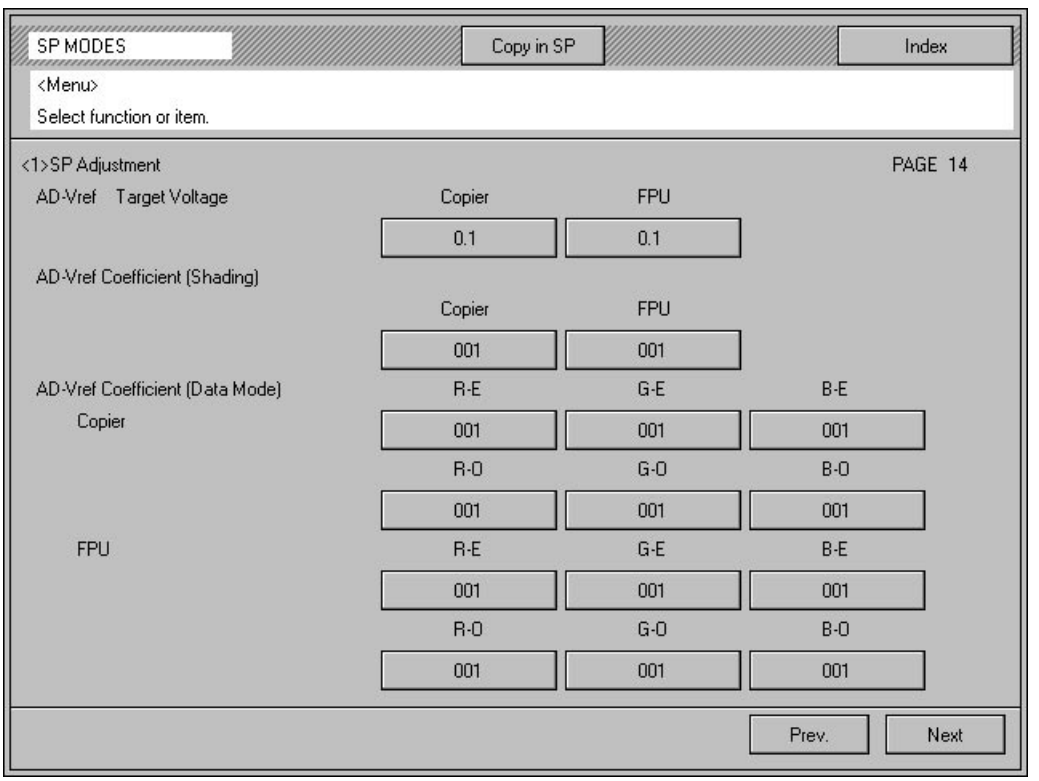
Page	Item	Function	Note
<1> -6	***Transfer Belt Bias (Back Side: Normal Humidity)***	Adjusts the transfer belt bias voltage for each transfer process of the back side copy in the manual duplex mode with normal humidity.	**Do not adjust in the field.** Default: 1C: 1410 2C: 1490 3C: 1575 4C: 1660 Adjustable range: 50 ~ 4000 V
	1C Mode Output Correction	Adjusts the 1C transfer belt bias voltage for unusual humidity ranges. These are for the back side copy in the manual duplex mode.	**Do not adjust in the field.** Default: Low 1: 2075 Low 2: 1740 Low 3: 1740 High: 1410
	Humidity Range Threshold	Sets the threshold of the humidity ranges for the transfer belt bias and roller bias.	**Do not adjust in the field.** Default: 1: 43 2: 85 3: 113 4: 215
<1> -7	Transfer Roller Bias (Normal Humidity)	Adjusts the transfer roller bias voltage for each transfer process (1C ~ 4C) and the paper modes (Normal, Thick, OHP: S, OHP: L, Normal: Back, and Thick: Back).	**Do not adjust in the field.** Adjustable range: 500 ~ 4000 V Default: Normal Paper 1C: 1200 2C: 1500 3C: 1800 4C-L&P: 1500 Thick Paper 1C: 1100 2C: 1360 3C: 1640 4C-L&P: 1360 OHP: S&L 1C: 2020 2C: 2080 3C: 2370 4C-L&P: 2080 Normal: Back 1C: 1200 2C: 1700 3C: 1980 4C-L&P: 1700 Thick: Back 1C: 1360 2C: 1640 3C: 1930 4C-L&P: 1640


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<1>SP Adjustment
PAGE 8
Transfer Roller Bias Coefficient By Humidity Range
Normal Paper
Thick Paper
OHP: S
OHP: L
NormalBack
Thick:Back
Low 3
1C
001
009
017
025
033
041
4C
002
010
018
026
034
042
Low 2
1C
003
011
019
027
035
043
4C
004
012
020
028
036
044
Low 1
1C
005
013
021
029
037
045
4C
006
014
022
030
038
046
High
1C
007
015
023
031
039
047
4C
008
016
024
032
040
048
Prev.
Next

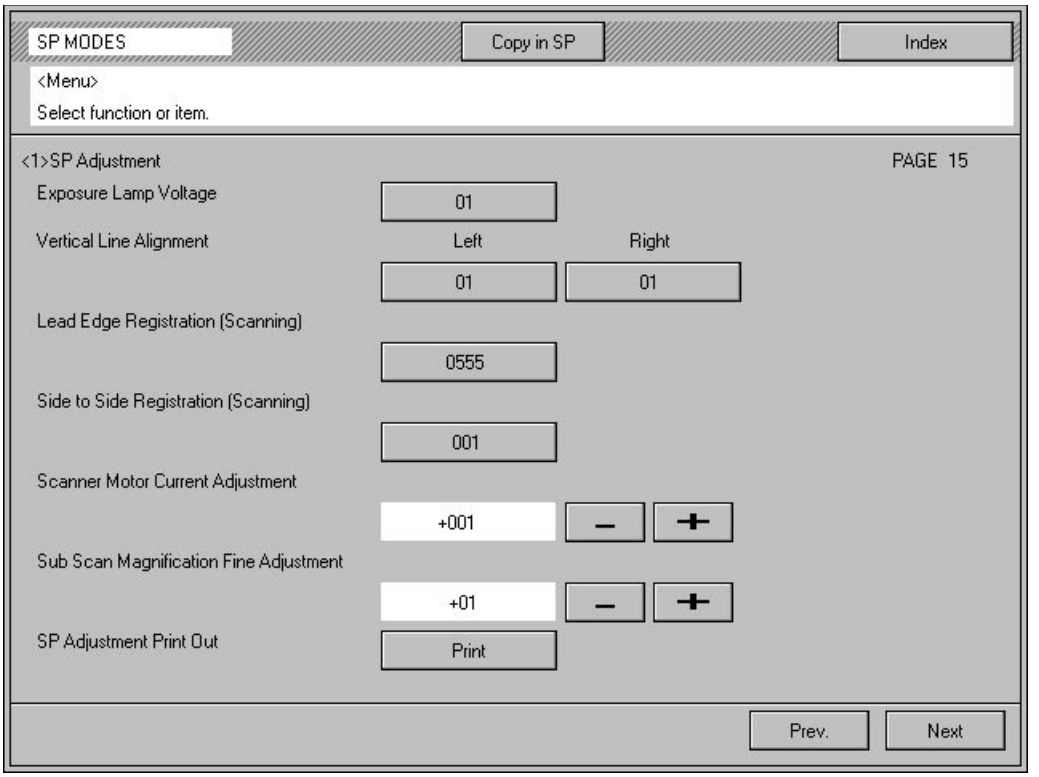

SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<1>SP Adjustment
PAGE 12
PPC
AC
0777V
DC
-077µA
Discharge Plate Output
Normal Paper
Thick Paper
Dplx: Face
Dplx: Back
0333V
0334V
0335V
0336V
Toner Sensor Gain
BK
Y
M
C
077
078
079
080
Toner Sensor Control Target
BK
Y
M
C
0.01V
0.01V
0.01V
0.01V
Prev.
Next

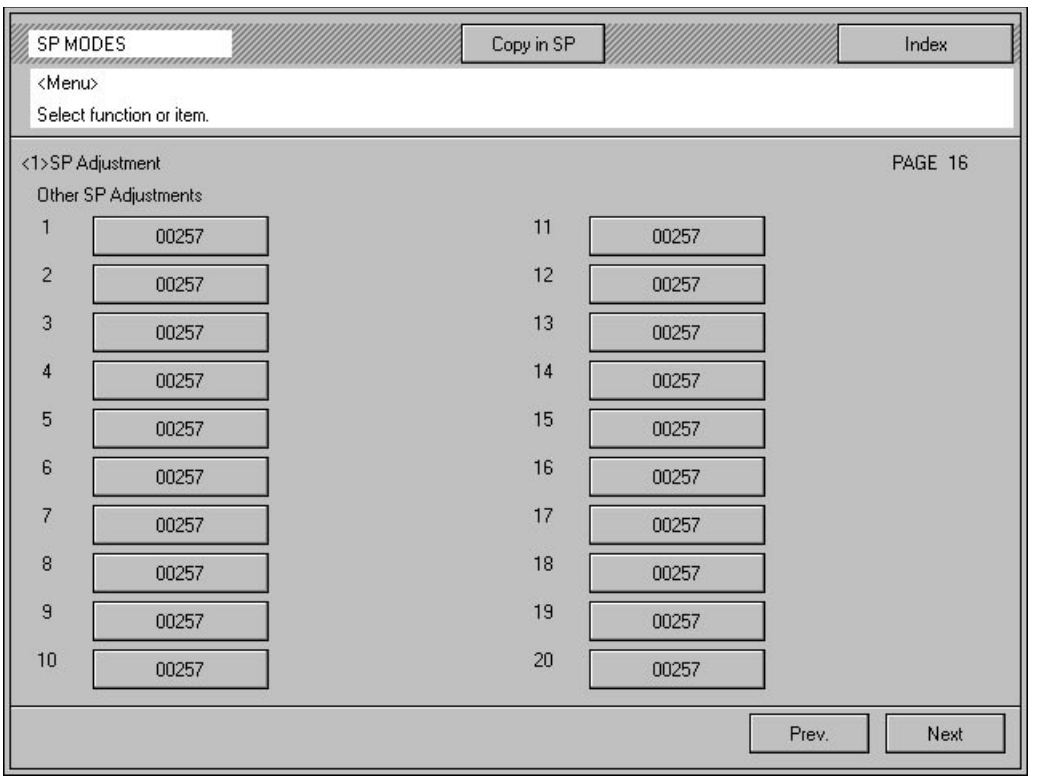
Page	Item	Function	Note
<1> -8	***Transfer Roller Bias Coefficient By Humidity Range***	Sets the coefficient (%) for the transfer roller bias (normal humidity) for other humidity ranges.	**Do not adjust in the field.** Adjustable range: 0 ~ 255
		Default: **Normal Paper** Low3 1C: 108 / 4C: 113 Low2 1C: 121 / 4C: 122 Low1 1C: 133 / 4C: 139 High 1C: 77 / 4C: 71 **Thick Paper** Low3 1C: 109 / 4C: 103 Low2 1C: 116 / 4C: 110 Low1 1C: 127 / 4C: 118 High 1C: 84 / 4C: 71 **OHP-S** Low3 1C: 98 / 4C: 97 Low2 1C: 98 / 4C: 95 Low1 1C: 98 / 4C: 95 High 1C: 93 / 4C: 97 **OHP-L** Low3 1C: 98 / 4C: 100 Low2 1C: 98 / 4C: 97 Low1 1C: 98 / 4C: 97 High 1C: 95 / 4C: 100 **Normal - Back** Low3 1C: 117 / 4C: 108 Low2 1C: 138 / 4C: 116 Low1 1C: 157 / 4C: 128 High 1C: 84 / 4C: 71 **Thick - Back** Low3 1C: 110 / 4C: 108 Low2 1C: 118 / 4C: 115 Low1 1C: 131 / 4C: 127 High 1C: 68 / 4C: 70	
<1> -12	PCC	Selects the PCC ac (V) and dc (μA) output.	Default: AC: 3180 V DC: –40 μA Adjustable range: AC: 2800 ~ 3800 V DC: –10 ~ –140 μA
	Discharge Plate Output	Adjusts the output voltage of the discharge plate for each paper mode.	**Do not change the setting in the field.** Default: Normal paper: 4000 V Thick paper: 3500 V Duplex: Face: 4000 V Duplex: Back: 4000 V
	Toner Sensor Gain	Manually changes the TD sensor gain data (VCNT Gain) determined during the developer's initial setting.	**Do not adjust in the field.**
	Toner Sensor Control Target	Manually changes the target voltage of the TD sensor output (VREF) during the developer's initial setting.	Default: 2.5 V (Bk, Y, M, C) Adjustable range: 0 ~ 5.0 V **Do not adjust in the field.**


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<1>SP Adjustment
PAGE 13
Blank Margin
Main Scan Lead Edge
+0.1mm
Trail Edge
+0.1mm
Sub Scan Lead Edge
+0.1mm
Trail Edge
+0.1mm
Max BK Level Detection 1 Target
001
Max BK Level Detection 2 Target
R-E
G-E
B-E
001
001
001
R-O
G-O
B-O
001
001
001
Prev.
Next


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<1>SP Adjustment
PAGE 14
AD-Vref Target Voltage
Copier
FPU
0.1
0.1
AD-Vref Coefficient (Shading)
Copier
FPU
001
001
AD-Vref Coefficient (Data Mode)
R-E
G-E
B-E
Copier
001
001
001
R-O
G-O
B-O
001
001
001
FPU
R-E
G-E
B-E
001
001
001
R-O
G-O
B-O
001
001
001
Prev.
Next

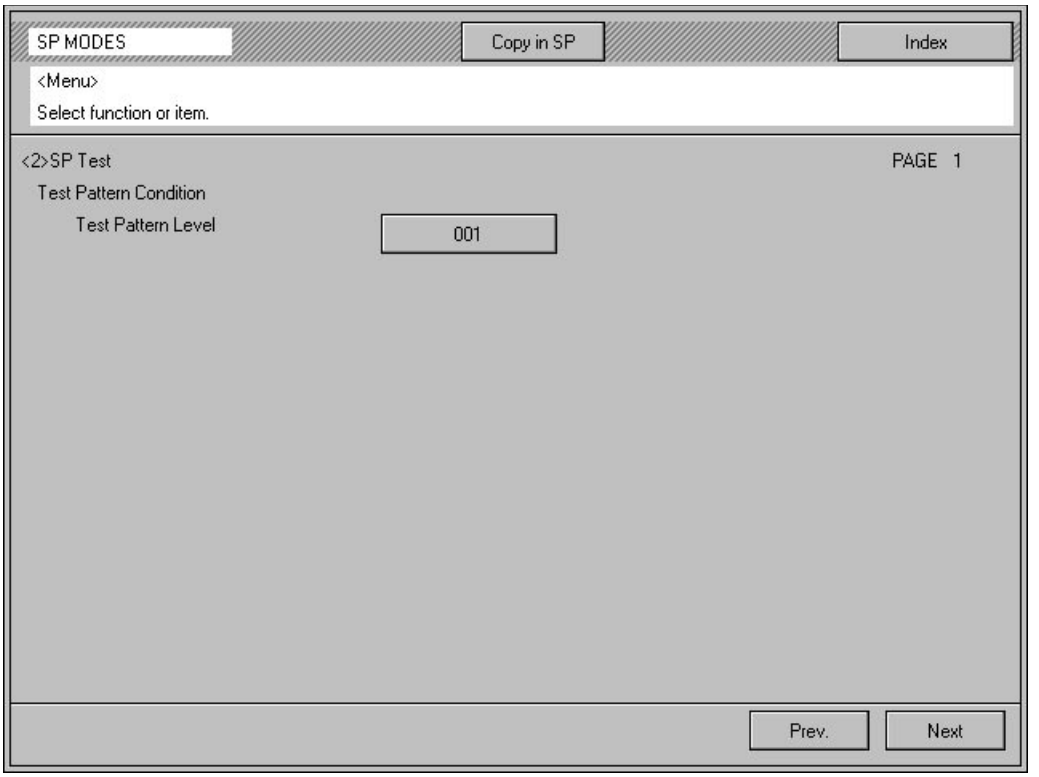
Page	Item	Function	Note
<1> -13	Blank Margin	Adjusts the width of the margins at the edges of the copy paper. **Main Scan Lead Edge:** Adjusts the margin at the right edge of the copy paper. **Main Scan Trail Edge:** Adjusts the margin at the left edge of the copy paper. **Sub Scan Lead Edge:** Adjusts the margin at the leading edge of the copy paper. **Sub Scan Trail Edge:** Adjusts the margin at the trailing edge of the copy paper.	Adjustable range: Right edge: –5 ~ 5 mm Left edge: –5 ~ 5 mm Lead edge: –5 ~ 5 mm Trailing edge: –5 ~ 5 mm
	Max Bk Level Detection 1 Target	Adjusts the black level target (DA1) for the AGC.	Default:8 **Do not adjust in the field.**
	Max Bk Level Detection 2 Target	Adjusts the black level target (DA2) for the AGC.	Default:4 (R-E, G-E, B-E, R-O, G-O, B-O) **Do not adjust in the field.**
<1> -14	AD-Vref Target Voltage	Selects the AD-VREF target voltage to set the exposure lamp voltage in the AGC.	Default: Copier: 2.7 FPU: 4.0 **Do not adjust in the field.**
	AD-Vref Coefficient (Shading)	Selects the AD-VREF coefficient to prevent the overflow of white shading data.	Default data: Copier: 110 SPU: 110 **Do not adjust in the field.**
	AD-Vref Coefficient (Data Mode)	Factory use only (Gray balance adjustment)	**Do not adjust in the field.**

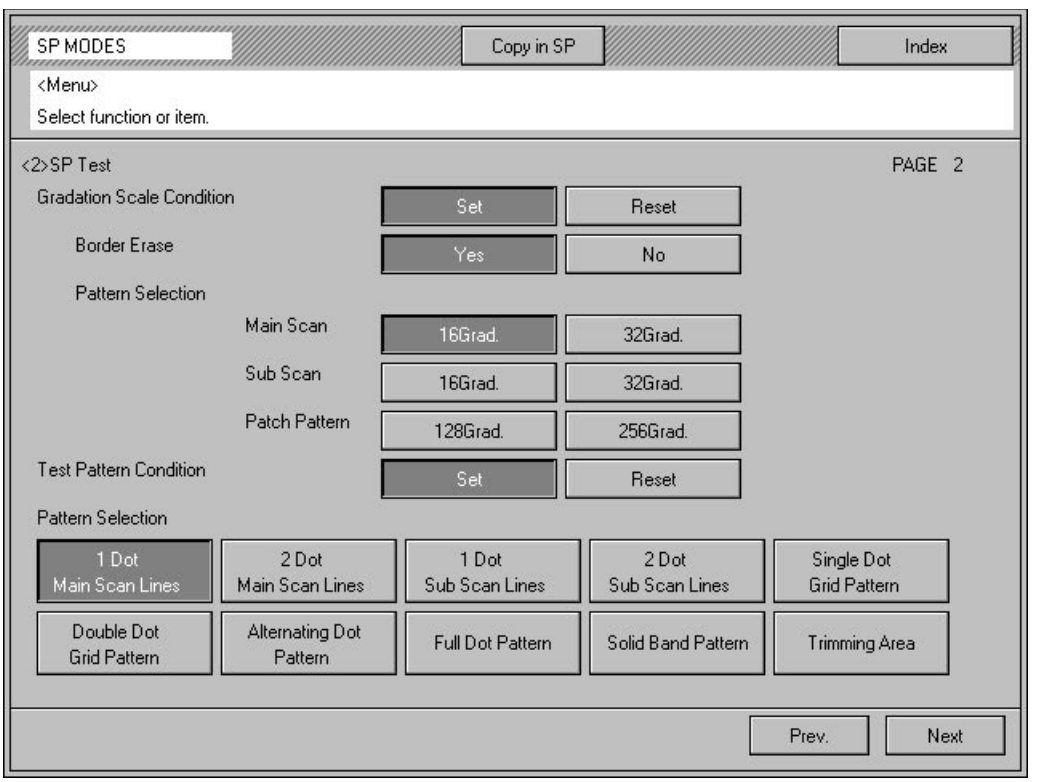

SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<1>SP Adjustment
PAGE 15
Exposure Lamp Voltage
01
Vertical Line Alignment
Left
Right
01
01
Lead Edge Registration (Scanning)
0555
Side to Side Registration (Scanning)
001
Scanner Motor Current Adjustment
+001
–
+
Sub Scan Magnification Fine Adjustment
+01
–
+
SP Adjustment Print Out
Print
Prev.
Next


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<1>SP Adjustment
PAGE 16
Other SP Adjustments
1 00257
2 00257
3 00257
4 00257
5 00257
6 00257
7 00257
8 00257
9 00257
10 00257
11 00257
12 00257
13 00257
14 00257
15 00257
16 00257
17 00257
18 00257
19 00257
20 00257
Prev.
Next

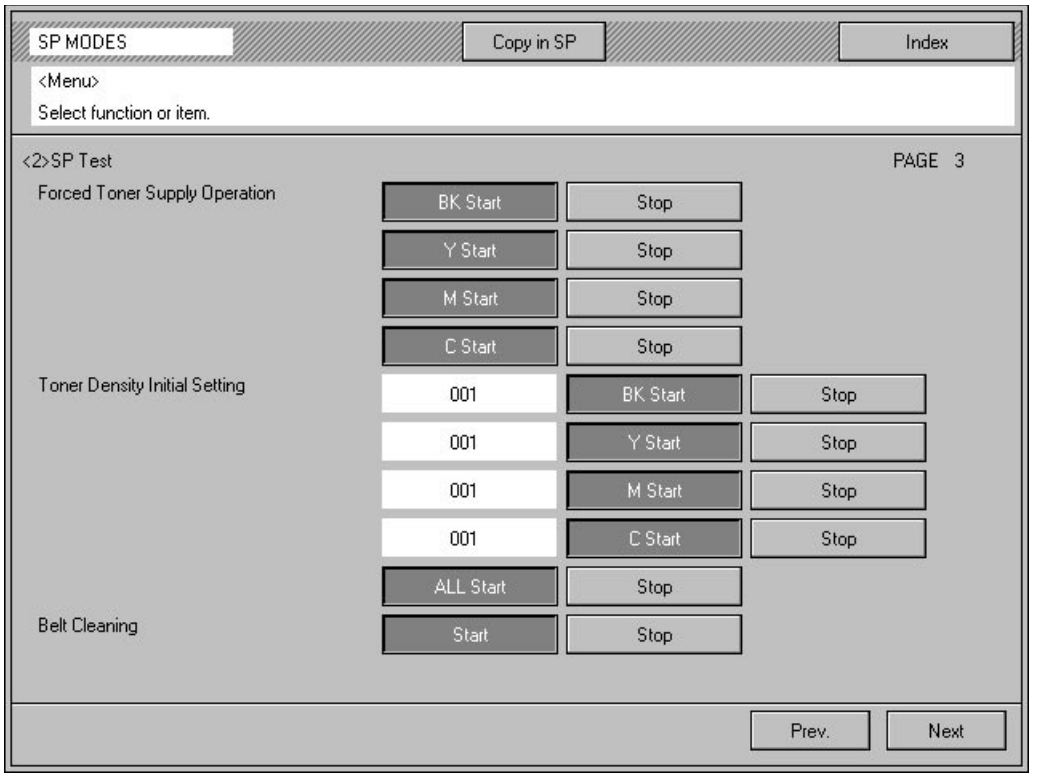
Page	Item	Function	Note
<1> -15	Exposure Lamp Voltage	Adjusts the exposure lamp input voltage during factory adjustment. This does not influence the exposure lamp input voltage during copying.	Default: 70 V Adjustable range: 50 ~ 75 V **Do not adjust in the field.**
	Vertical Line Alignment	Adjusts the YMCBk vertical line alignment at the sides of copies caused by the CCD board being not positioned perpendicularly to the light axis.	If the image alignment at the left side is incorrect, change this data. If the image alignment at the right side is incorrect, change this data.
	Lead Edge Registration (Scanning)	Adjusts the vertical image position by changing the start time of image reading in the subscan direction.	Default: 75 Adjustable range: 0 ~ 4095 **Do not adjust in the field.**
	Side to Side Registration (Scanning)	Adjusts the horizontal image position by changing the start time of image reading in the main scan direction.	Default: 155 Adjustable range: 0 ~ 255 **Do not adjust in the field.**
	Scanner Motor Current Adjustment	Adjust the scanner motor speed by changing the scanner motor current.	Motor current adjustment Default: 100 Fine adjustment Default: 0 **Do not adjust in the field.**
	Sub Scan Magnification Fine Adjustment	Adjust the scanner motor speed by changing the scanner motor current.	Motor current adjustment Default: 100 Fine adjustment Default: 0 **Do not adjust in the field.**
	SP Adjustment Print Out	Prints out the SP adjustment data.	
<1> -16	***Other SP Adjustments***	Only #13 is effective. #13: Select the humidity sensor function ON or OFF.	#13 default: 0 0: Humidity sensor ON 1: Humidity sensor OFF

1.2.2 [2] SP Test

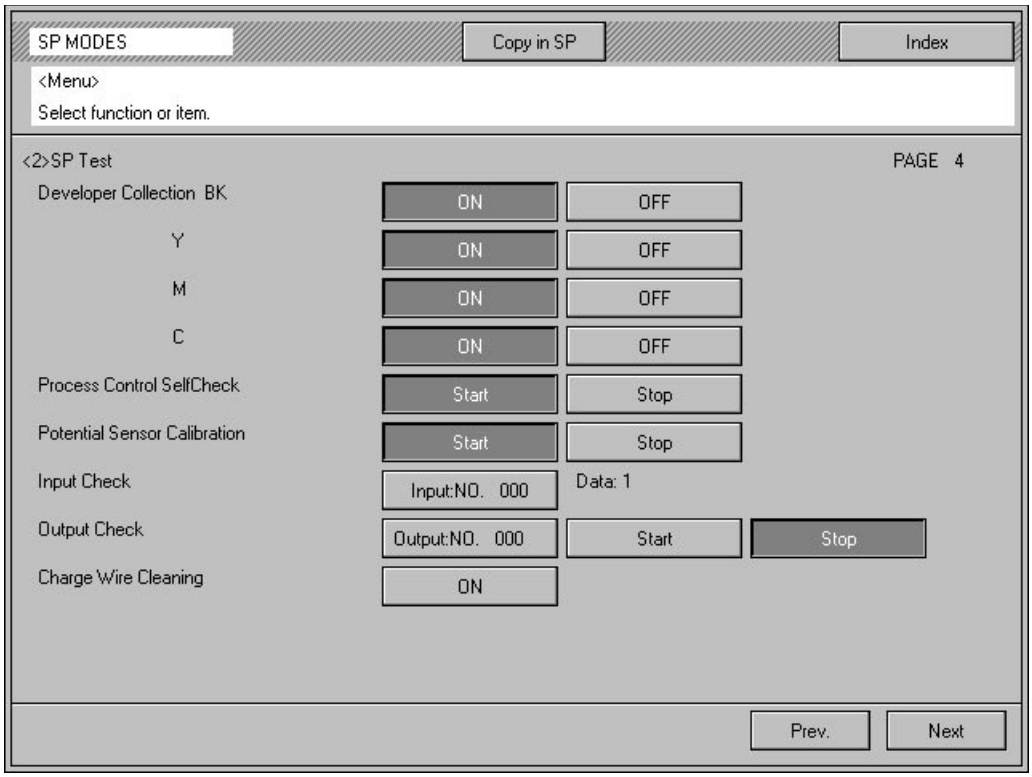

SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<2>SP Test
PAGE 1
Test Pattern Condition
Test Pattern Level
001
Prev.
Next


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<2>SP Test
PAGE 2
Gradation Scale Condition
Set
Reset
Border Erase
Yes
No
Pattern Selection
Main Scan
16Grad.
32Grad.
Sub Scan
16Grad.
32Grad.
Patch Pattern
128Grad.
256Grad.
Test Pattern Condition
Set
Reset
Pattern Selection
1 Dot Main Scan Lines
2 Dot Main Scan Lines
1 Dot Sub Scan Lines
2 Dot Sub Scan Lines
Single Dot Grid Pattern
Double Dot Grid Pattern
Alternating Dot Pattern
Full Dot Pattern
Solid Band Pattern
Trimming Area
Prev.
Next

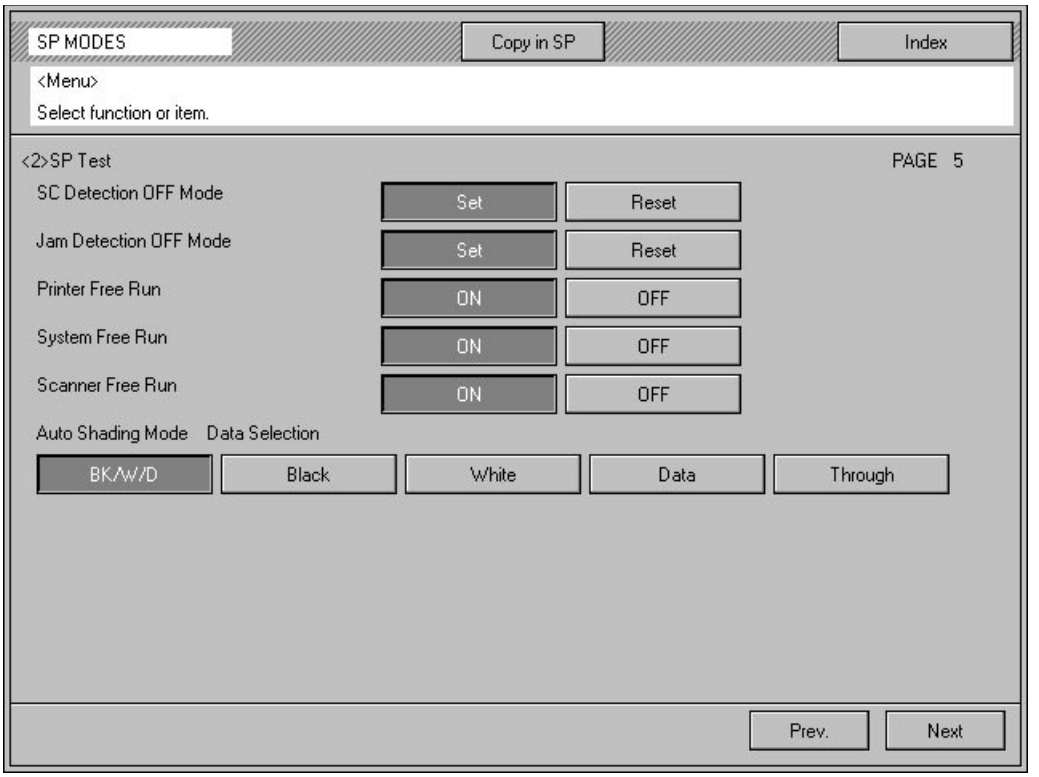
Page	Item	Function	Note
<2> -1	Test Pattern Condition	Adjusts the laser power for the test pattern density for the 256 grades.	Default: 255 This function effects the test patterns in the bottom part of SP <2>-2.
<2> -2	Gradation Scale Condition	Enables the gray scale printing. ***Border Erase** Enables the creation of the white margin between the different density gray scales. ***Pattern Selection** Selects the kind of gray scales.	Default: Reset ***Border Erase** Default: No ***Pattern Selection** Access the "Copy in SP" mode and press the Start key to print the gray scales.
	Test Pattern Condition	Enables test pattern printing. ***Pattern Selection** Selects the type of test pattern.	Default: Reset If both test pattern and gradation scale are enabled, only the gradation pattern is printed. ***Pattern Selection** Access the "Copy in SP" mode and press the start key to print the test pattern.
	Pattern Selection	Selects the type of test pattern.	Access the "Copy in SP" mode and press the start key to print the test pattern.

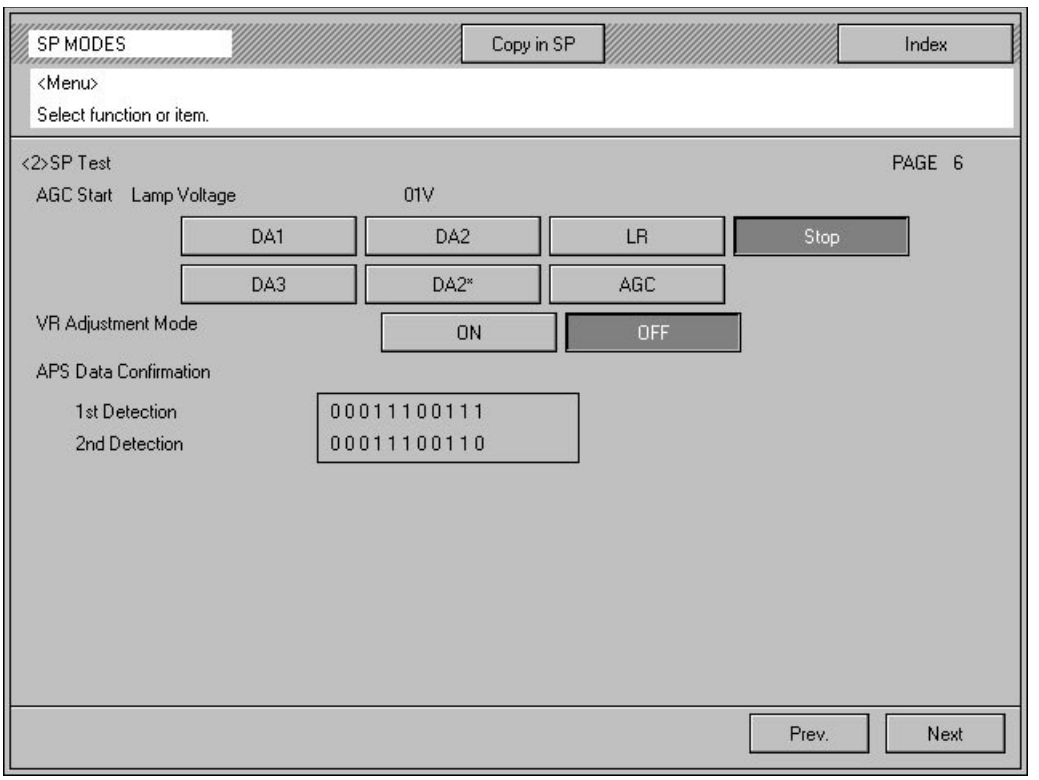

SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<2>SP Test
PAGE 3
Forced Toner Supply Operation
BK Start
Stop
Y Start
Stop
M Start
Stop
C Start
Stop
Toner Density Initial Setting
001
BK Start
Stop
001
Y Start
Stop
001
M Start
Stop
001
C Start
Stop
ALL Start
Stop
Belt Cleaning
Start
Stop
Prev.
Next

Page	Item	Function	Note
<2> -3	Forced Toner Supply Operation	Factory use only	**Do not use in the field.**
	Toner Density Initial Setting	Starts and stops the toner density sensor's initial setting. Indicates the gain data of each color TD sensor. Both toner supply reference values of the TD sensor and the TD sensor gain value are set automatically when developer is replaced.	Do not make a copy with new developer before the initial developer setting. Do this without the toner tank installed. This mode is required when new developer is installed or the TD sensor is replaced. This mode automatically stops when completed.
	Belt Cleaning	Performs the transfer belt cleaning.	This mode must be performed after replacing the transfer belt. Belt cleaning automatically stops after about 10 seconds.


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<2>SP Test
PAGE 4
Developer Collection BK
ON
OFF
Y
ON
OFF
M
ON
OFF
C
ON
OFF
Process Control SelfCheck
Start
Stop
Potential Sensor Calibration
Start
Stop
Input Check
Input:NO. 000
Data: 1
Output Check
Output:NO. 000
Start
Stop
Charge Wire Cleaning
ON
Prev.
Next

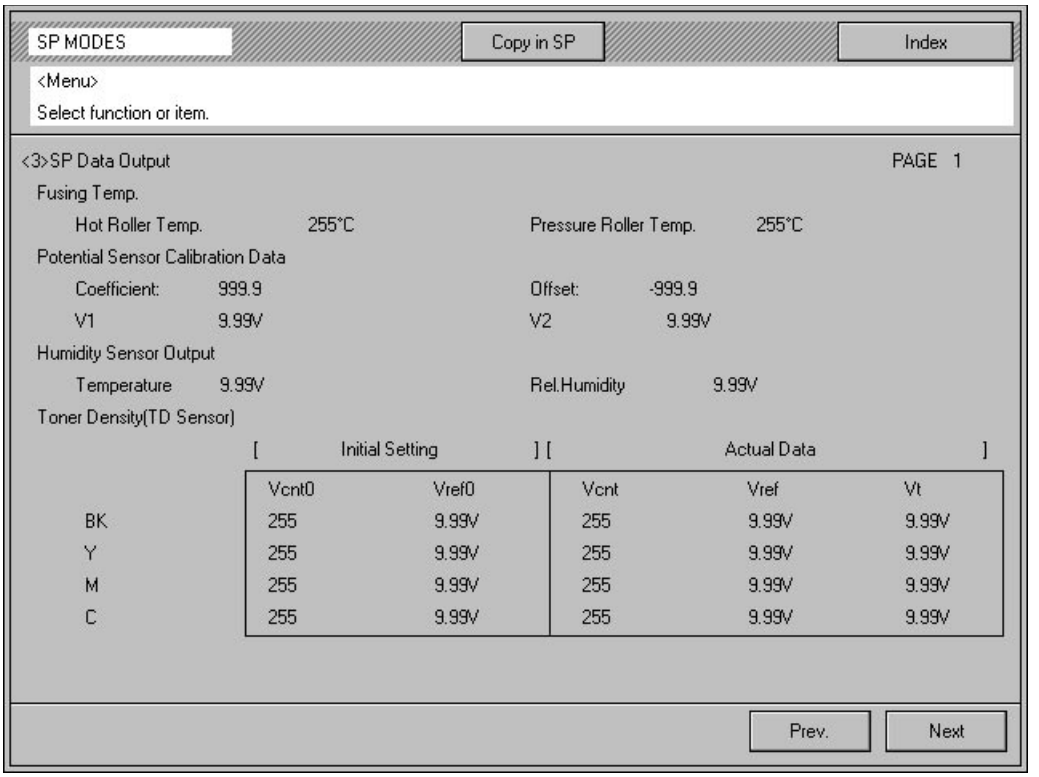
Page	Item	Function	Note
<2> -4	Developer Collection Bk	Starts and stops the developer collection.	The Bk or color development drive motor rotates and the selected color sleeve motor rotates forwards and reverse alternatively.
	Process Control Self Check	Starts and stops the process control self check.	Perform this mode when the following parts are replaced (or cleaned) Drum potential sensor/drum/ charge corona wire, charge corona grid, and casing/lamps around the drum/developer/ RAM etc. This mode should be performed with a drum not used for more than 5 minutes. This mode automatically stops after completing.
	Potential Sensor Calibration	Starts and stops the drum potential sensor calibration.	This mode should be performed with a drum not used for more than 5 minutes. This mode automatically stops after completing.
	Input Check	Checks if the sensors or switches are correctly activated and de-activated.	Status 0 --- de-activated Status 1 --- activated
	Output Check	Checks if the motors, solenoids, clutches etc. activate and de-activate.	Access this mode as follows: 1. Touch the output mode key. 2. Enter the electrical component number by using the number keys on the operation panel. 3. Touch the output mode key. Touch the start key to activate and touch the stop key to de- activate the electrical component.
	Charge Wire Cleaning	Starts the charge corona wire/grid cleaning.	This mode automatically stops after completing. The forced process control self check must be done immediately after this.

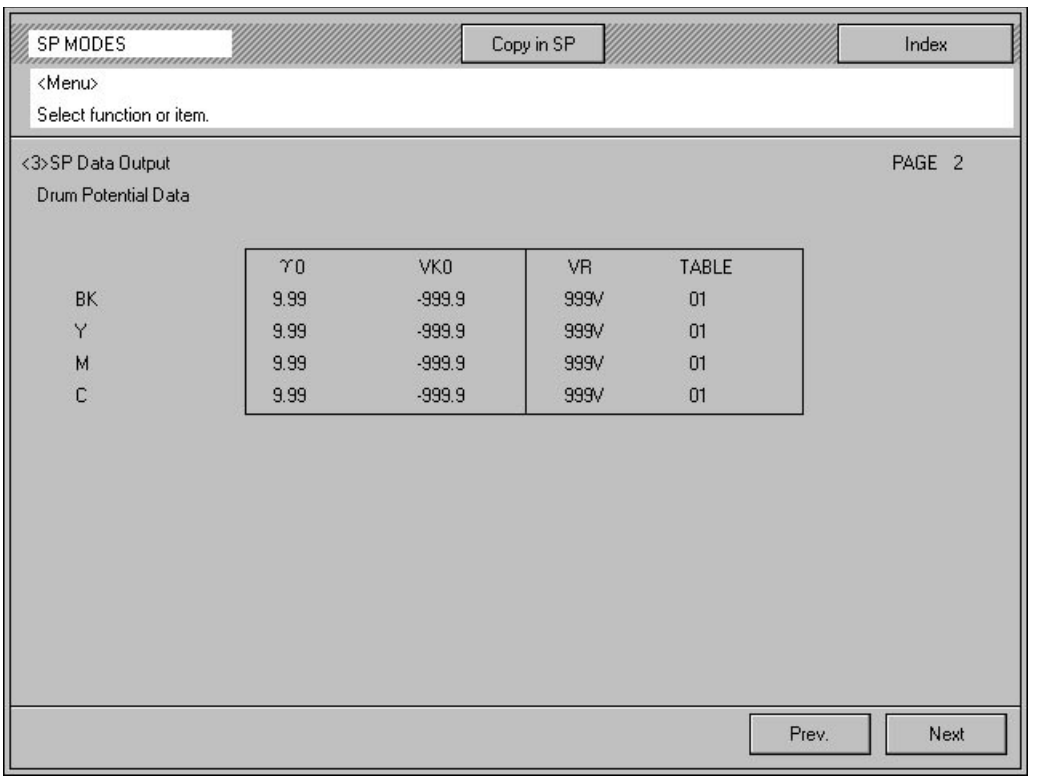

SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<2>SP Test
PAGE 5
SC Detection OFF Mode
Set
Reset
Jam Detection OFF Mode
Set
Reset
Printer Free Run
ON
OFF
System Free Run
ON
OFF
Scanner Free Run
ON
OFF
Auto Shading Mode Data Selection
BK/W/D
Black
White
Data
Through
Prev.
Next


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<2>SP Test
PAGE 6
AGC Start Lamp Voltage
01V
DA1
DA2
LR
Stop
DA3
DA2*
AGC
VR Adjustment Mode
ON
OFF
APS Data Confirmation
1st Detection
00011100111
2nd Detection
00011100110
Prev.
Next

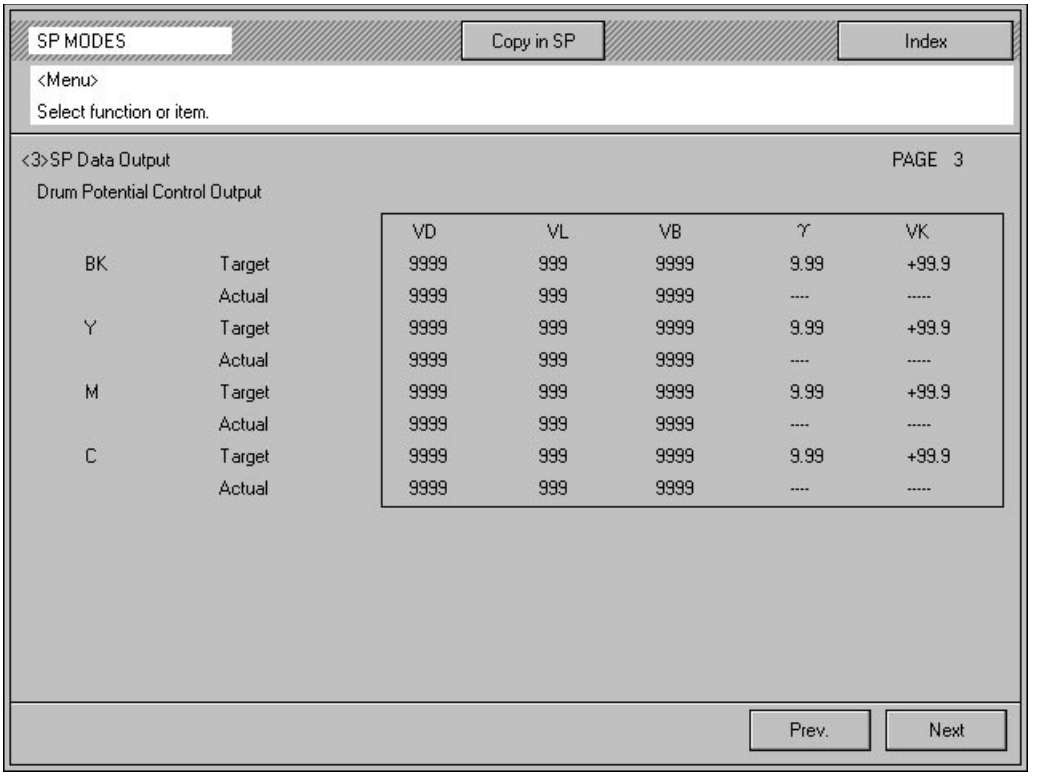
Page	Item	Function	Note
<2> -5	SC Detection OFF Mode	Disables the self-diagnostic function.	Default: Reset (enable)
	Jam Detection OFF Mode	Disables jam detection (ON check).	Default: Reset (enable)
	Printer Free Run	Starts printer free run mode.	Paper is not fed in this mode.
	System Free Run	Starts system free run mode.	Paper is not fed in this mode. When using the system free run, close the platen cover or place white paper on the exposure glass to avoid toner scattering inside the machine.
	Scanner Free Run	Starts scanner free run mode.	Paper is not fed in this mode.
	Auto Shading Mode Data Selection	Separately performs the shading compensation sequence.	Factory use only
<2> -6	AGC Start Lamp Voltage	Separately performs the auto gain control sequence.	Factory use only
	VR Adjustment Mode	Turns on the exposure lamp.	Factory use only
	APS Data Confirmation	Checks if the original size sensors are correctly activated or de-activated at the 1st and 2nd detection.	Status 0 --- de-activated Status 1 --- activated

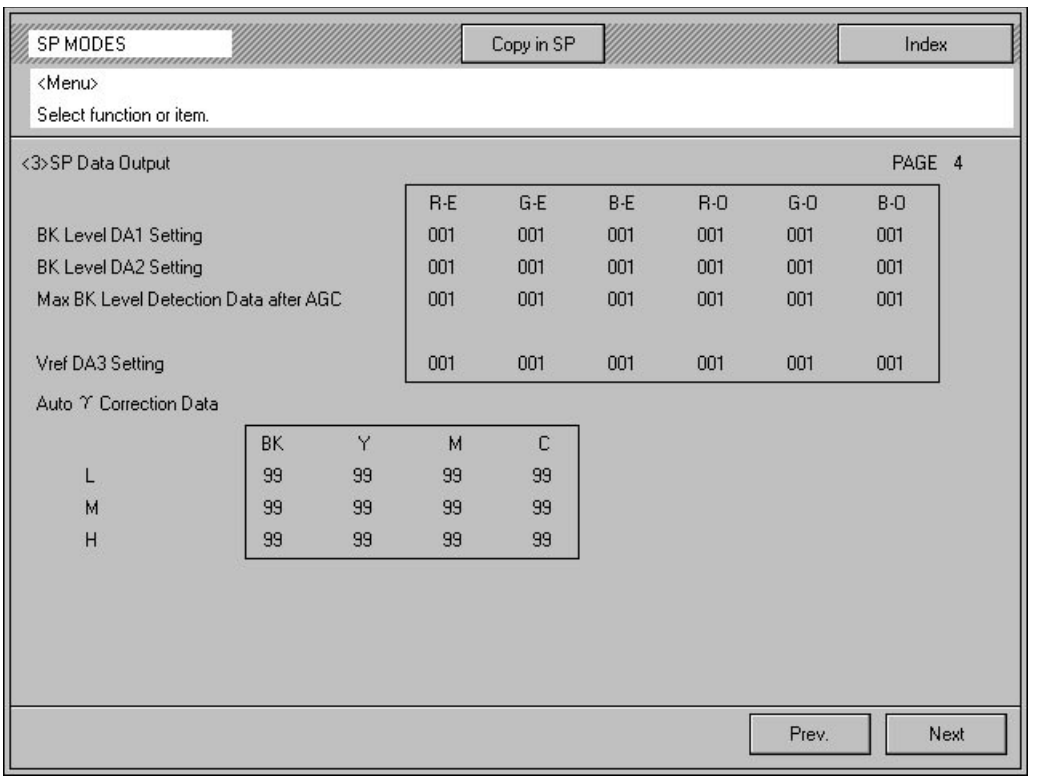
1.2.3 [3] SP Data Output





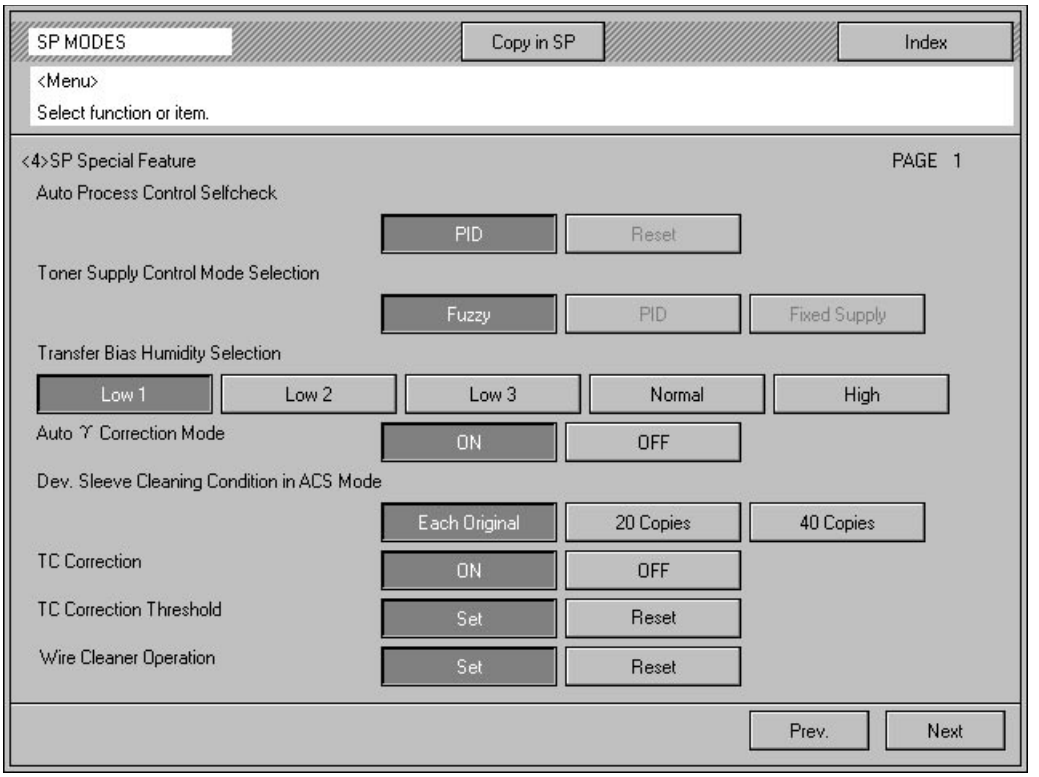
Page	Item	Function	Note
<3> -1	Fusing Temp.	Indicates the hot roller/pressure roller temperature based on the output of the thermistors.	
	Potential Sensor Calibration Data	Indicates the potential sensor calibration data.	V1: Potential sensor output at a drum potential of 300 V V2: Potential sensor output at a drum potential of 600 V
	Humidity Sensor Output	Indicates the humidity sensor output for the temperature and relative humidity.	
	Toner Density (TD Sensor)	Indicates values (V_T, V_{REF}, V_{CNT}) relating to each color toner density sensor.	
<3> -2	***Drum Potential Data***	Indicates the drum potential data and the pointer table number determined during the process control self check.	


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<3>SP Data Output
PAGE 3
Drum Potential Control Output
VD VL VB γ VK
BK Target 9999 999 9999 9.99 +99.9
Actual 9999 999 9999 ---- -----
Y Target 9999 999 9999 9.99 +99.9
Actual 9999 999 9999 ---- -----
M Target 9999 999 9999 9.99 +99.9
Actual 9999 999 9999 ---- -----
C Target 9999 999 9999 9.99 +99.9
Actual 9999 999 9999 ---- -----
Prev.
Next

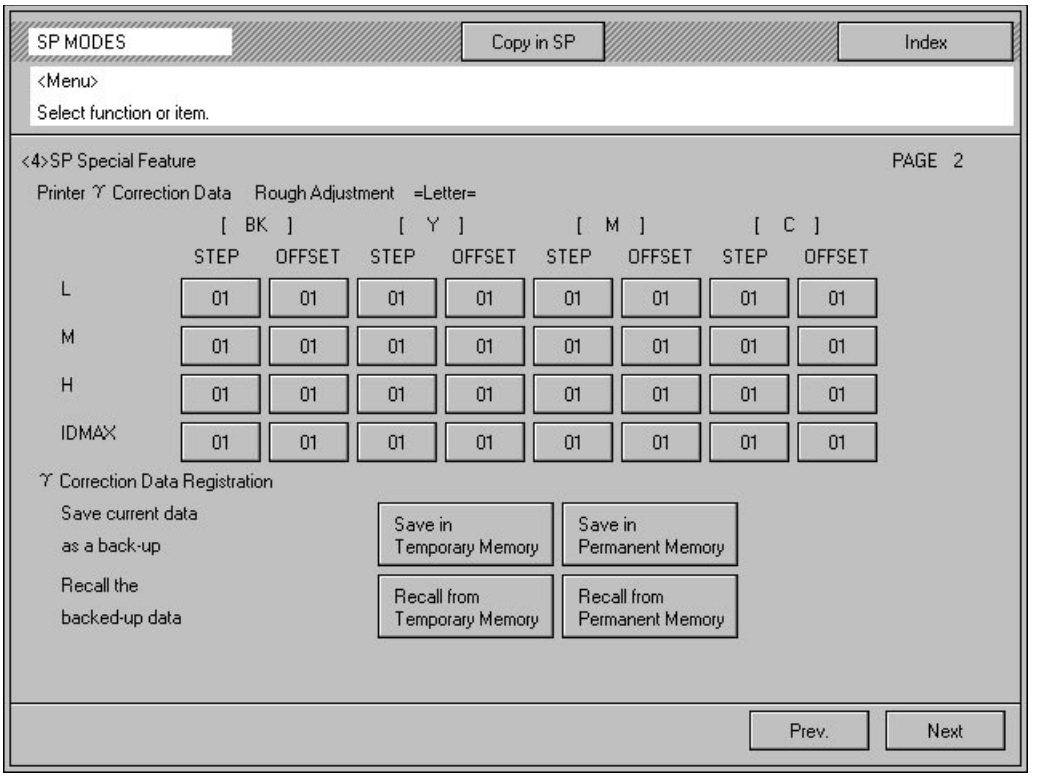

SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<3>SP Data Output
PAGE 4
R-E G-E B-E R-O G-O B-O
BK Level DA1 Setting 001 001 001 001 001 001
BK Level DA2 Setting 001 001 001 001 001 001
Max BK Level Detection Data after AGC 001 001 001 001 001 001
Vref DA3 Setting 001 001 001 001 001 001
Auto γ Correction Data
BK Y M C
L 99 99 99 99
M 99 99 99 99
H 99 99 99 99
Prev.
Next

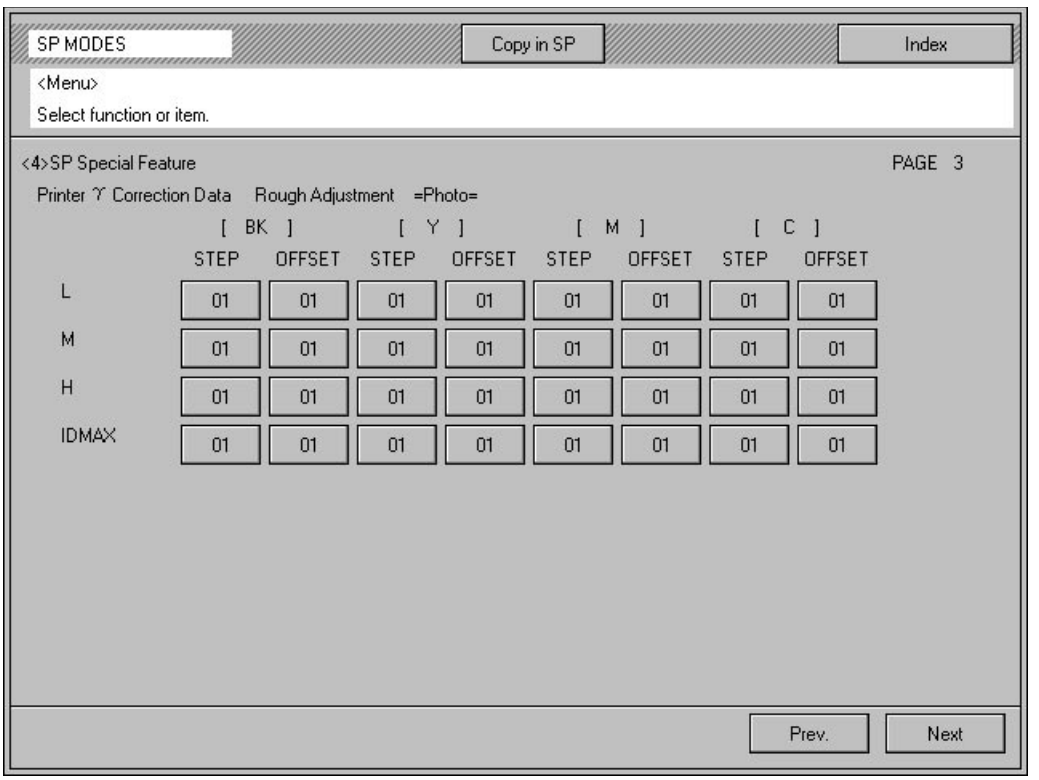
Page	Item	Function	Note
<3> -3	Drum Potential Control Output	Indicates the target and actual data related to process control.	VD: charge potential VL: exposed drum potential VB: development bias γ : development gamma VK: development reference data
<3> -4	Bk Level DA1 Setting	Displays DA1 settings.	Factory use only
	Bk Level DA2 Setting	Displays DA2 settings.	Factory use only
	Max Bk Level Detection Data after AGC	Displays DA2* settings.	Factory use only
	Vref DA3 Setting	Displays DA3 settings.	Factory use only
	Auto γ Correction Data	Indicates the correction data decided in auto γ correction.	Indication only

1.2.4 [4] SP Special Feature

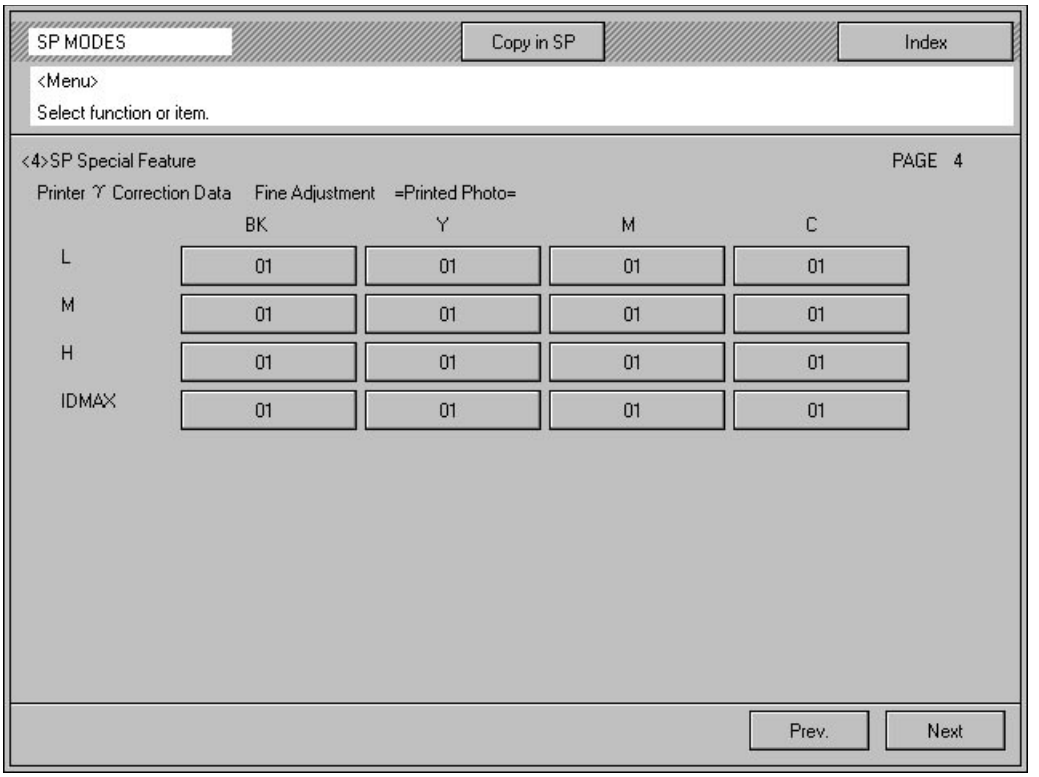


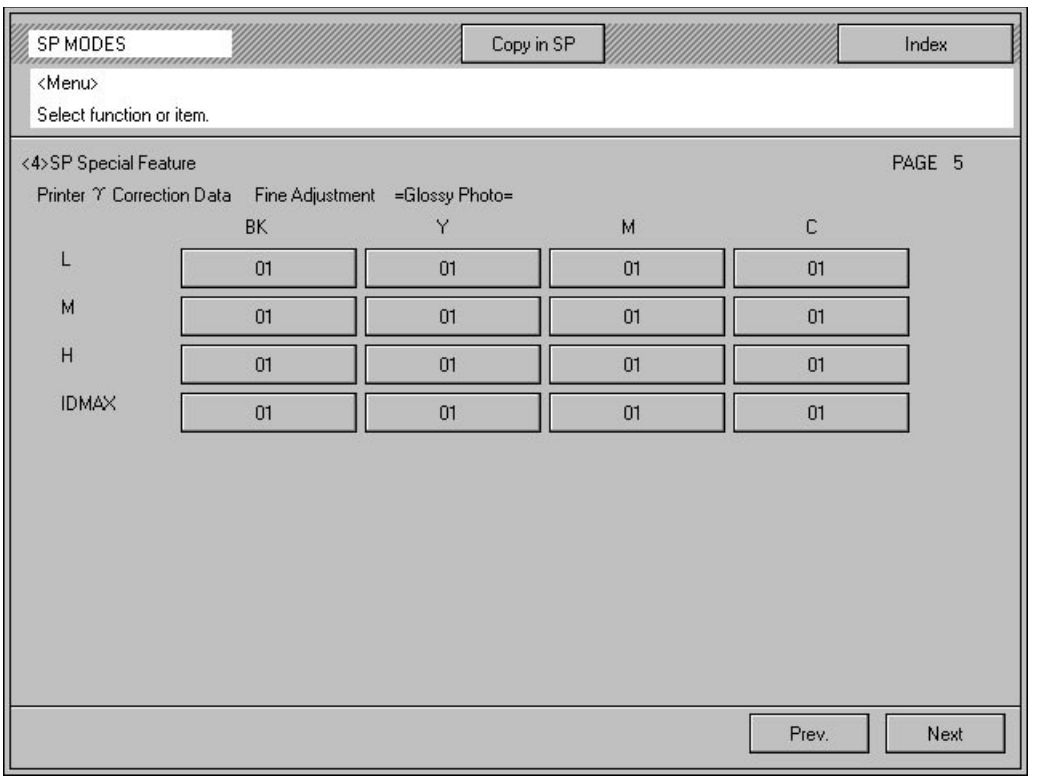
Page	Item	Function	Note
<4> -1	Auto Process Control Self check	Factory use only	**"PID" setting must be used.**
	Toner Supply Control Mode Selection	Selects toner supply mode.	Default: Fuzzy **"Fuzzy" setting must be used.**
	Transfer Bias Humidity Selection	Selects the output voltage for the transfer belt and the transfer roller bias that are used if the humidity sensor is not working properly. Use the setting that best approximates the machine's location.	Default: Normal This function is effective under the following conditions: 1. Humidity sensor is not working well: • Output is 0. • Temperature output is over 49°C or below 2°C. • Humidity output is over 98% or below 2%. 2. Humidity sensor is disconnected. 3. Humidity sensor function is disabled: SP<1>P.16 Other SP #13=1
	Auto γ Correction Mode	Enable or disable the auto γ correction mode.	Default: ON
	Dev. Sleeve Cleaning Condition in ACS Mode	Selects the interval of the development sleeve cleaning mode in ACS&DJF mode.	Default: 40 copies
	TC Correction	Selects the TC correction (Vcnt correction) on or off.	Default: ON **Do not change the setting in the field.**
	TC Correction Threshold	Selects to use or not to use the threshold set in the SP "<1>-4 TC Correction Threshold".	Default: Reset **Do not change the setting in the field.**
	Wire Cleaner Operation	Enables/disables the automatic charge corona wire/grid cleaning operation.	Default: Set (Enabled)

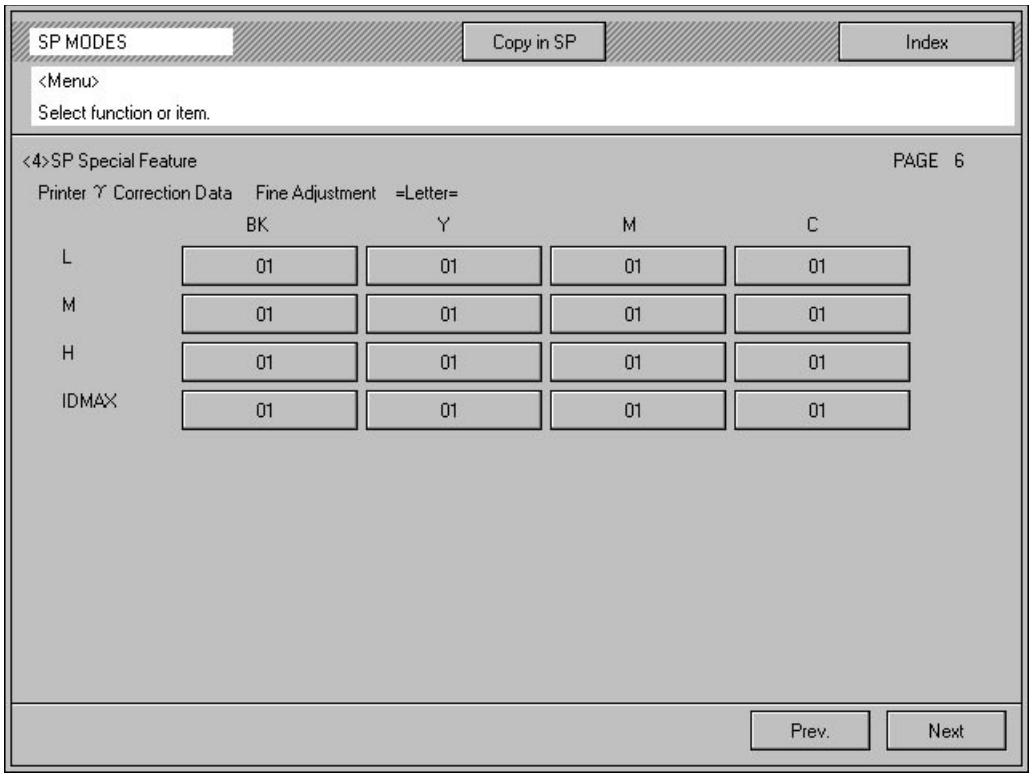

SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<4>SP Special Feature
PAGE 2
Printer γ Correction Data Rough Adjustment =Letter=
[BK] [Y] [M] [C]
STEP OFFSET STEP OFFSET STEP OFFSET STEP OFFSET
L 01 01 01 01 01 01 01 01
M 01 01 01 01 01 01 01 01
H 01 01 01 01 01 01 01 01
IDMAX 01 01 01 01 01 01 01 01
γ Correction Data Registration
Save current data as a back-up
Save in Temporary Memory
Save in Permanent Memory
Recall the backed-up data
Recall from Temporary Memory
Recall from Permanent Memory
Prev.
Next


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<4>SP Special Feature
PAGE 3
Printer γ Correction Data Rough Adjustment =Photo=
[BK] [Y] [M] [C]
STEP OFFSET STEP OFFSET STEP OFFSET STEP OFFSET
L 01 01 01 01 01 01 01 01
M 01 01 01 01 01 01 01 01
H 01 01 01 01 01 01 01 01
IDMAX 01 01 01 01 01 01 01 01
Prev.
Next

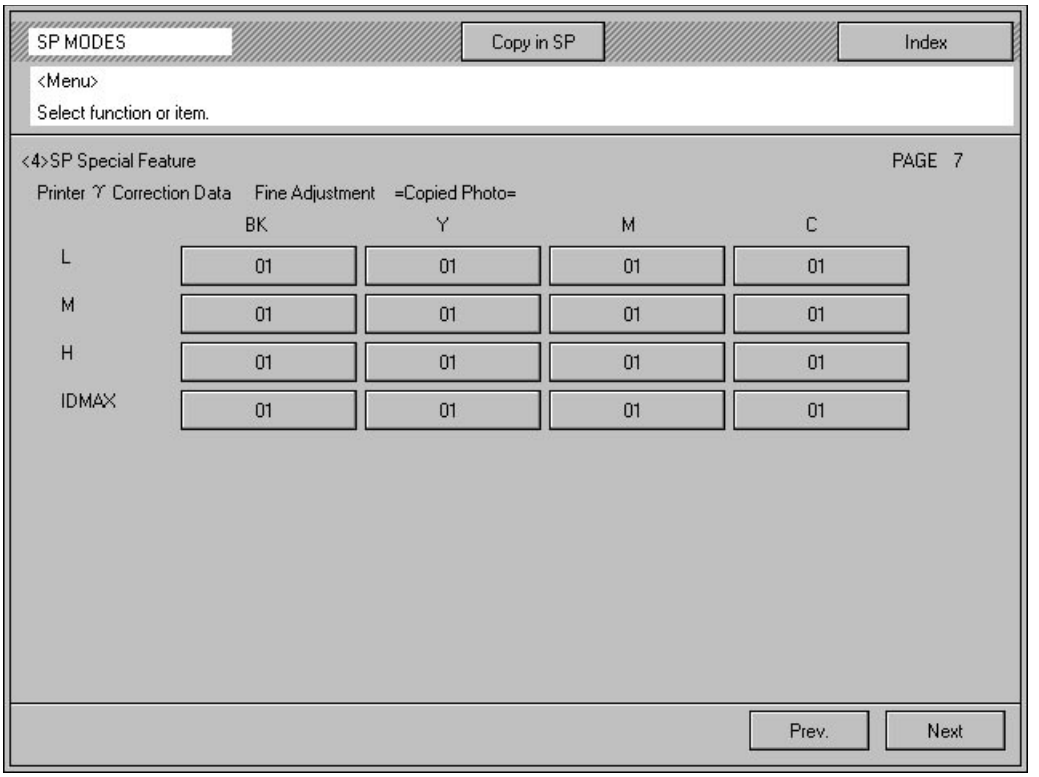
Page	Item	Function	Note
	Printer γ Correction Data Rough Adjustment =Letter=	Adjusts image density for each color in letter mode. (Letter mode rough adjustment)	**Do not change the STEP data in the field.** See section 5, color balance adjustment.
<4> -2	γ ***Correction Data Registration***	Saves or recalls the printer γ correction data for Letter & Photo rough adjustment and Letter & Printed Photo fine adjustment in the temporary memory or the permanent memory. ***Saves current data as back-up*** Saves the current printer γ correction data in the memory. ***Recalls the back-up data*** Recalls the printer γ correction data from the memory.	Factory settings for the printer γ correction are kept in permanent memory. • To keep the factory settings, do not use "Save in Permanent Memory", as long as the data has not been corrupted. • The current settings will be saved in the temporary memory automatically after performing the ACC. • "Recall from Temporary Memory" can be used to undo the last ACC.
<4> -3	Printer γ Correction Data Rough Adjustment =Photo=	Adjusts image density for each color in photo mode. (Photo mode rough adjustment)	**Do not change the STEP data in the field.** See section 5, color balance adjustment.

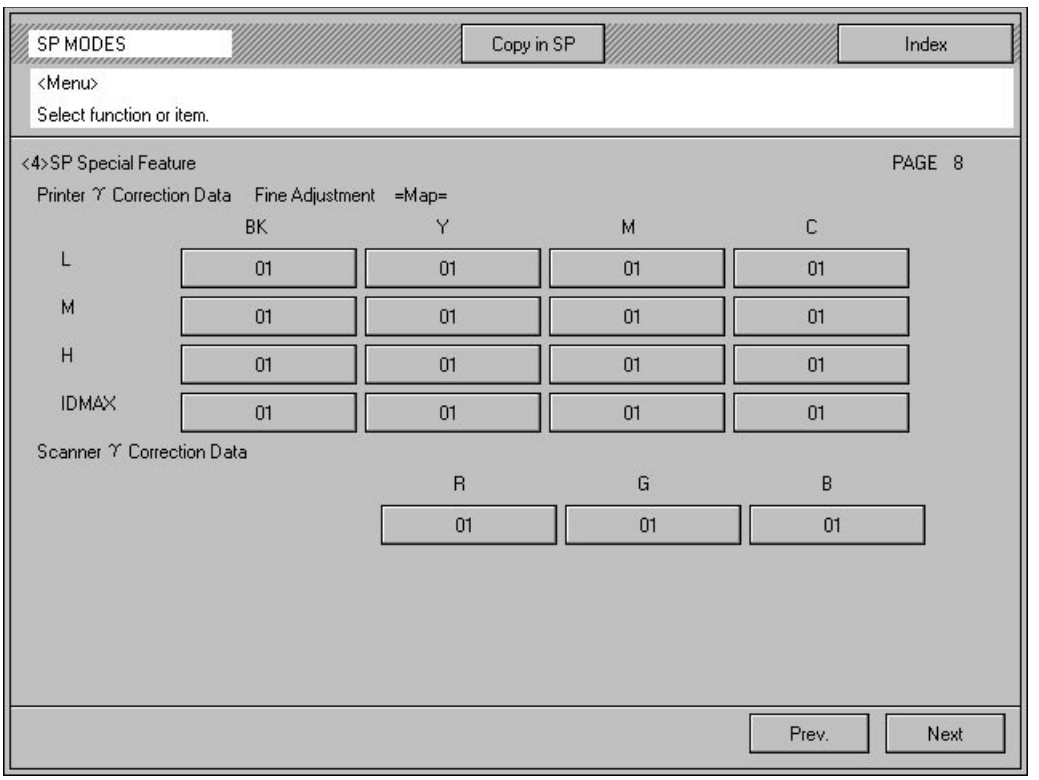

SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<4>SP Special Feature
PAGE 4
Printer γ Correction Data Fine Adjustment =Printed Photo=
BK Y M C
L 01 01 01 01
M 01 01 01 01
H 01 01 01 01
IDMAX 01 01 01 01
Prev.
Next


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<4>SP Special Feature
PAGE 5
Printer γ Correction Data Fine Adjustment =Glossy Photo=
BK Y M C
L 01 01 01 01
M 01 01 01 01
H 01 01 01 01
IDMAX 01 01 01 01
Prev.
Next

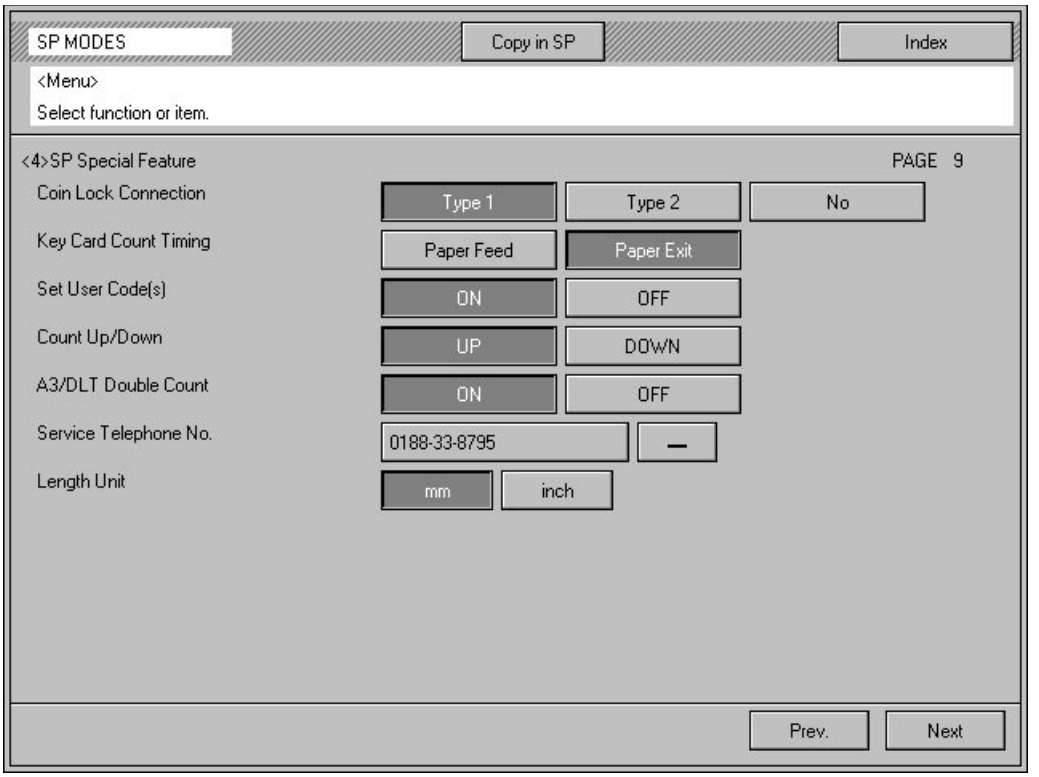


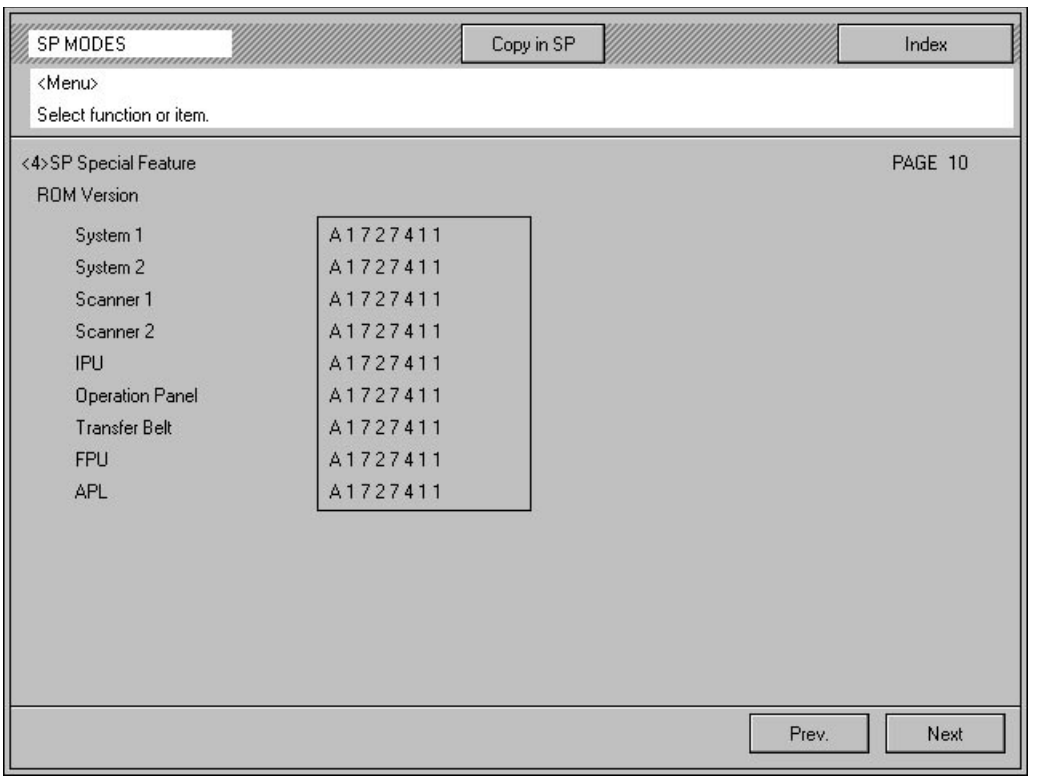
Page	Item	Function	Note
<4> -4	Printer γ Correction Data Fine Adjustment =Printed Photo=	Adjusts each color image density (Letter mode fine adjustment)	**Do not adjust in the field.** Default: 5 for all
<4> -5	***Printer γ Correction Data Fine Adjustment =Glossy Photo=***	Not used. (Indication only)	Default: 5 for all
<4> -6	Printer γ Correction Data Fine Adjustment =Letter=	Adjusts each color image density (Letter mode fine adjustment)	**Do not change the data in the field.** Default: 5 for all


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<4>SP Special Feature
PAGE 7
Printer γ Correction Data Fine Adjustment =Copied Photo=
BK Y M C
L 01 01 01 01
M 01 01 01 01
H 01 01 01 01
IDMAX 01 01 01 01
Prev.
Next

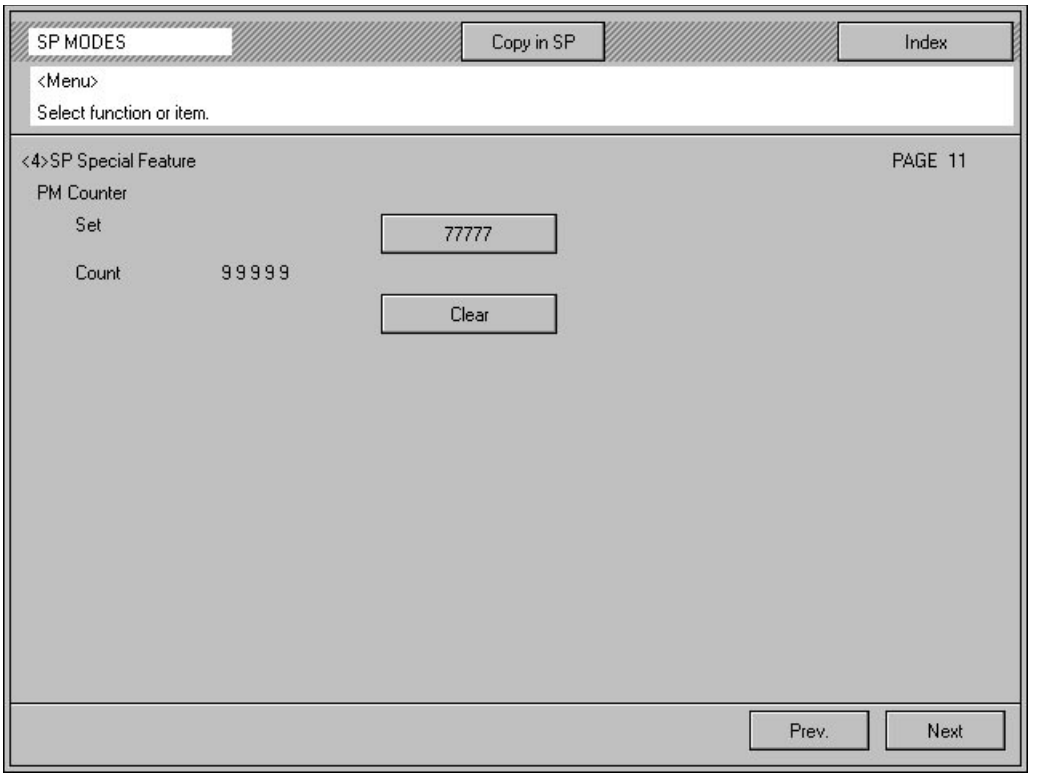

SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<4>SP Special Feature
PAGE 8
Printer γ Correction Data Fine Adjustment =Map=
BK Y M C
L 01 01 01 01
M 01 01 01 01
H 01 01 01 01
IDMAX 01 01 01 01
Scanner γ Correction Data
R G B
01 01 01
Prev.
Next

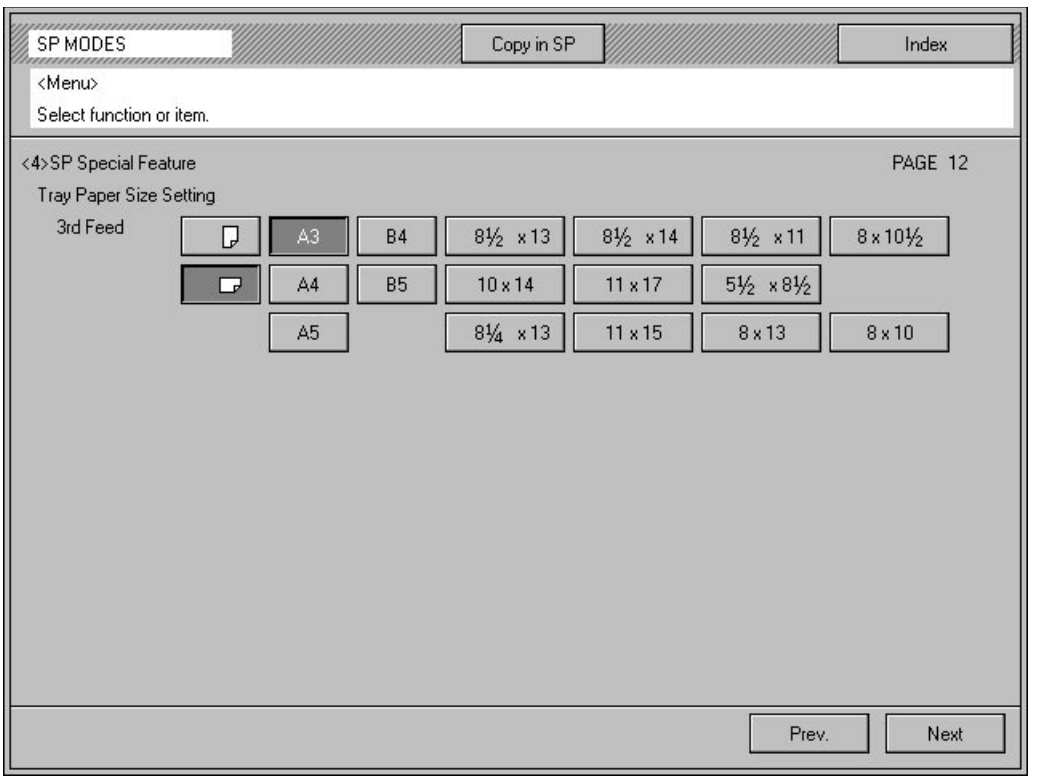
Page	Item	Function	Note
<4> -7	***Printer γ Correction Data Fine Adjustment =Copied Photo=***	Not used. (Indication only)	Default: 5 for all
<4> -8	***Printer γ Correction Data Fine Adjustment =Map=***	Not used. (Indication only)	Default: 5 for all
	Scanner γ Correction Data	Not used. (Indication only)	Default: 75 for all


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<4>SP Special Feature
PAGE 9
Coin Lock Connection
Type 1
Type 2
No
Key Card Count Timing
Paper Feed
Paper Exit
Set User Code(s)
ON
OFF
Count Up/Down
UP
DOWN
A3/DLT Double Count
ON
OFF
Service Telephone No.
0188-33-8795
Length Unit
mm
inch
Prev.
Next


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<4>SP Special Feature
PAGE 10
ROM Version
System 1 A1727411
System 2 A1727411
Scanner 1 A1727411
Scanner 2 A1727411
IPU A1727411
Operation Panel A1727411
Transfer Belt A1727411
FPU A1727411
APL A1727411
Prev.
Next

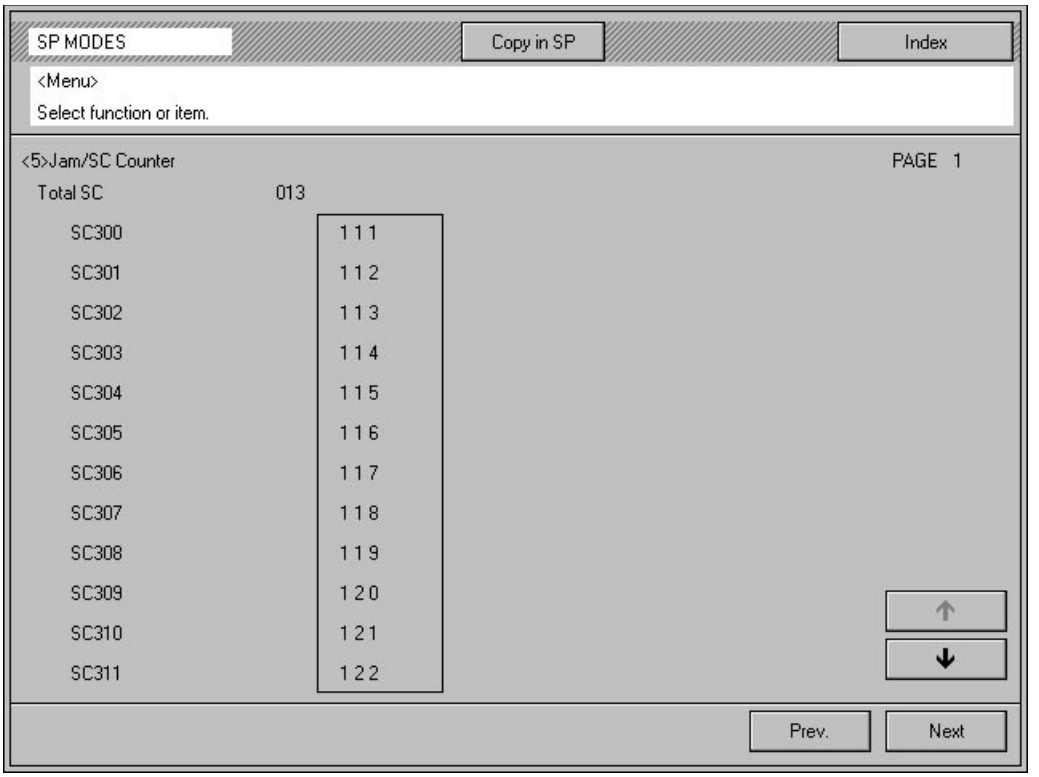
Page	Item	Function	Note
<4> -9	***Coin Lock Connection***	Not used.	Default: No
	Key Card Count Timing	Not used.	Default: Paper Exit
	Set User Code(s)	Enables user code mode.	Default: OFF The key counter shorting connector should be disconnected to enable user code mode.
	ADS Priority	Not used.	
	Count Up/Down	Selects copy count up or down.	Default: UP
	A3/DLT Double Count	Counts twice when an A3 or 11" x 17" copy is made.	Defaults: OFF
	Service Telephone No.	Stores the service center telephone number. This telephone number is indicated on the LCD when a service call condition occurs or PM is required.	Entering procedure: 1. Touch [000000000000000] key. 2. Enter numbers by pressing the number keys. (touch [–] to enter a hyphen). 3. Touch [000000000000000] key.
	Length Unit	Changes the length unit (mm or inches) for Shift, Erase, Size Mag. and Non Standard Original.	Default: inch (-10/15/17) mm (-22/26/27/29)
<4> -10	ROM Version	Indicates the ROM reference number, with suffix, on each PCB.	System 1: Main control IC1 System 2: Main control IC522 Scanner 1: Scanner control IC145 Scanner 2: Scanner control IC144 IPU: IC305 Operation Panel: IC1 Transfer Belt: Transfer belt motor drive IC609 FPU: --- APL: ---

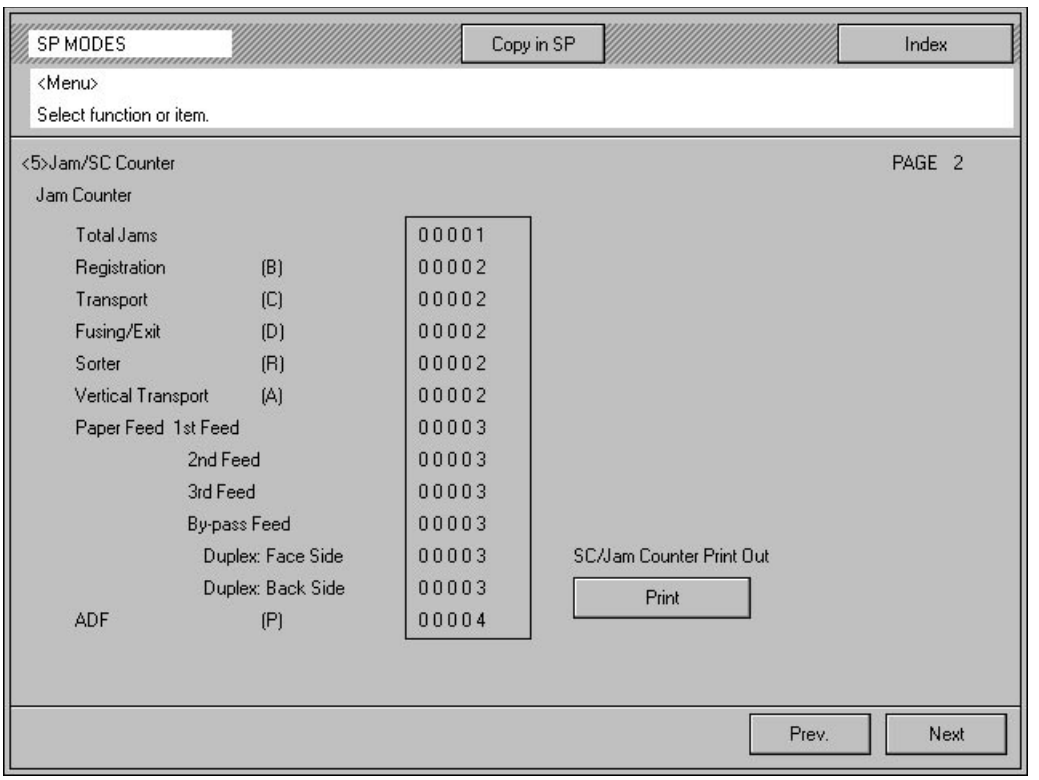

SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<4>SP Special Feature
PAGE 11
PM Counter
Set
77777
Count
99999
Clear
Prev.
Next


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<4>SP Special Feature
PAGE 12
Tray Paper Size Setting
3rd Feed
A3
B4
8½ x13
8½ x14
8½ x11
8 x10½
A4
B5
10 x14
11 x17
5½ x8½
A5
8¼ x13
11 x15
8 x13
8 x10
Prev.
Next

Page	Item	Function	Note
<4> -11	PM Counter	Selects the PM alarm interval after counter clear.	If you do not use the PM alarm, set this to "0". Default: 0
<4> -12	Tray Paper Size Setting	Selects the paper size and direction of the 3rd paper feed station.	

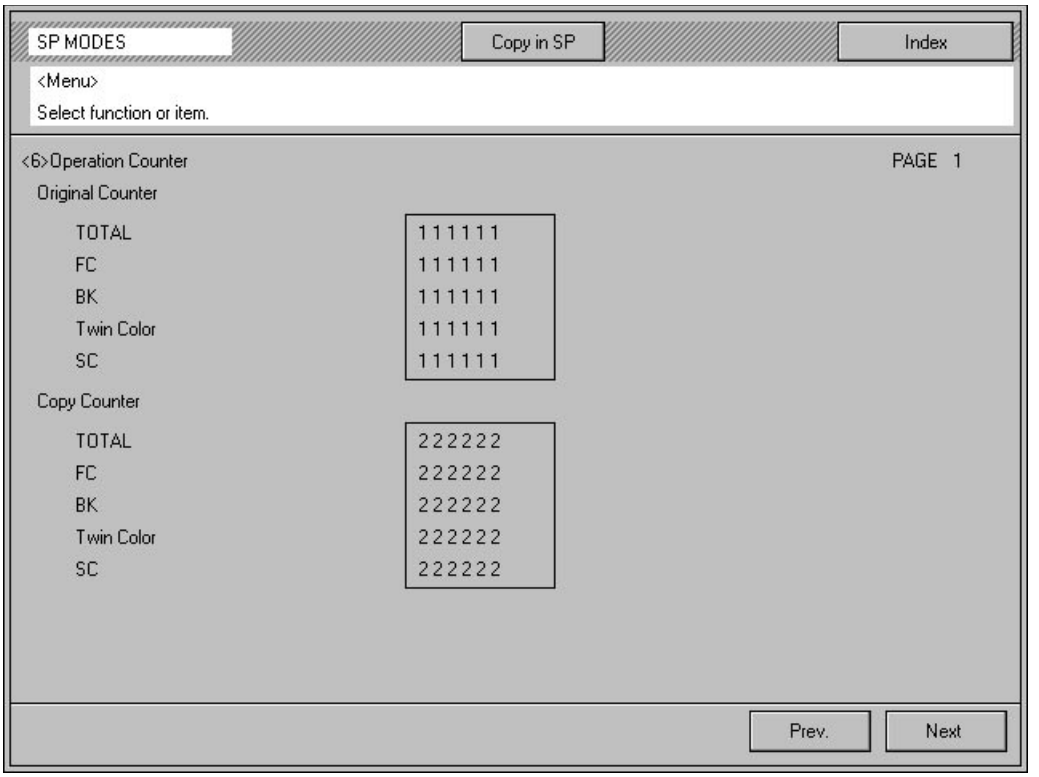
1.2.5 [5] Jam/SC Counter

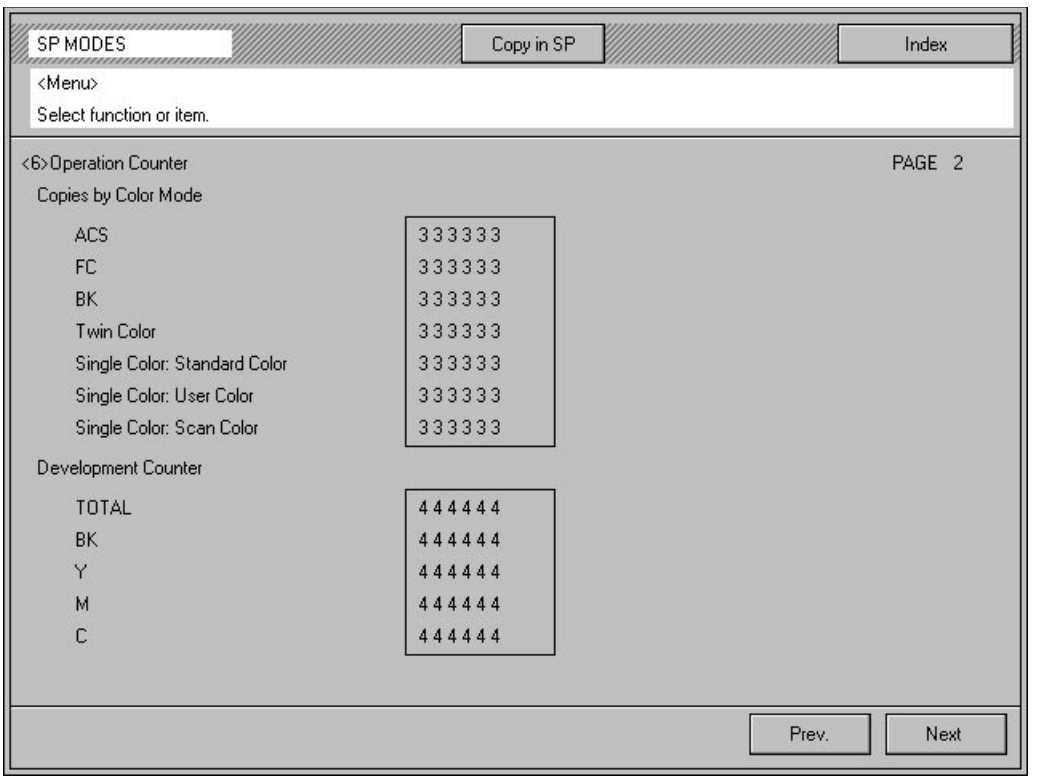


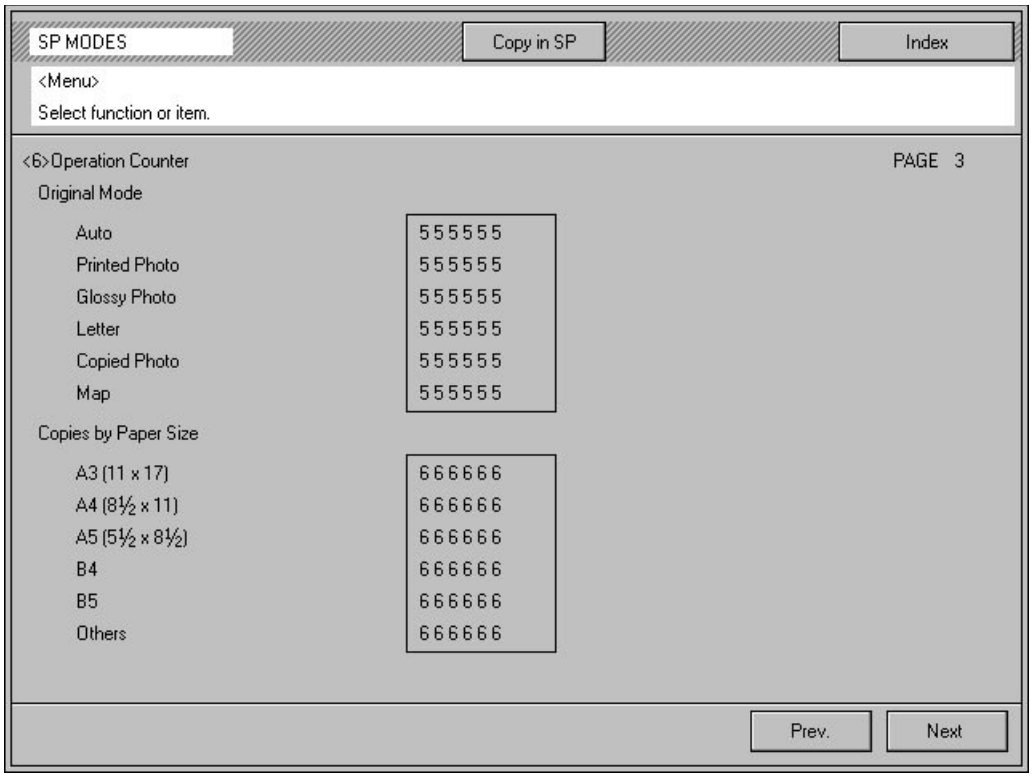


Page	Item	Function	Note
<5> -1	Total SC	Indicates the total number of service calls for each SC code.	See section 6 for details on each SC code. SCs that have not occurred at least once are not displayed.
<5> -2	Jam Counter	Indicates the total number of jams which have occurred in the copier and all peripherals.	
	SC/Jam Count Print Out	Prints out all the SC/Jam counters.	A4 sideways/11" x 8 1/2" or A3/11" x 17" paper should be loaded in the tray or the by-pass feed table.

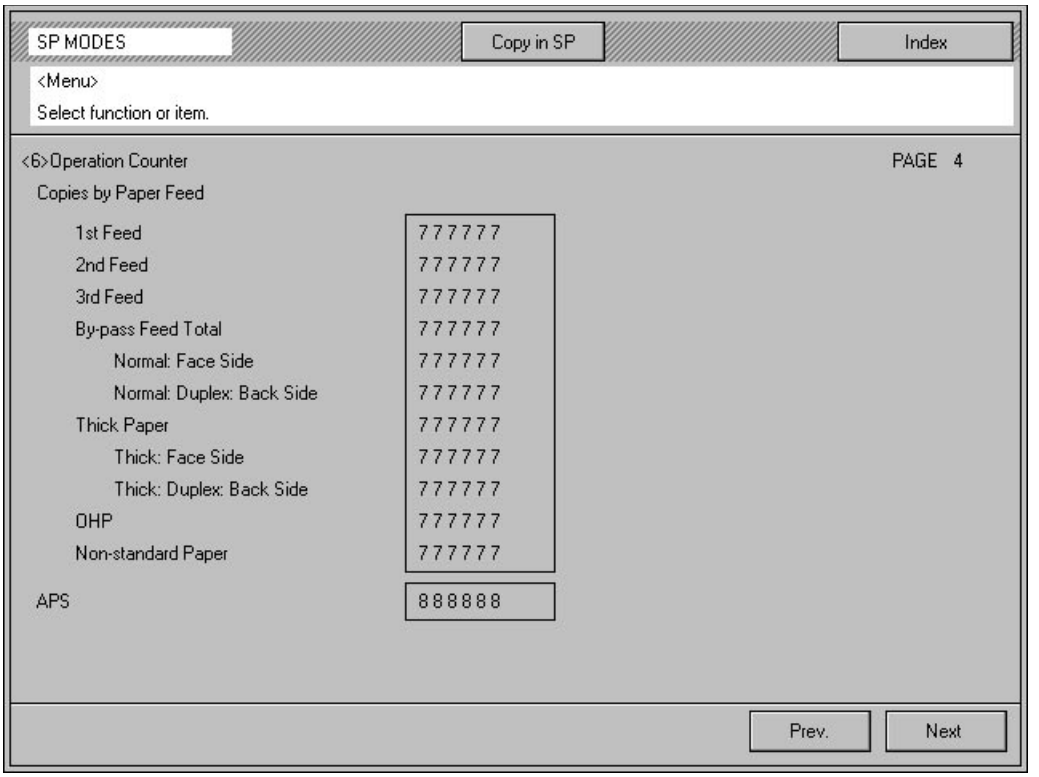
1.2.6 [6] Operation Counter

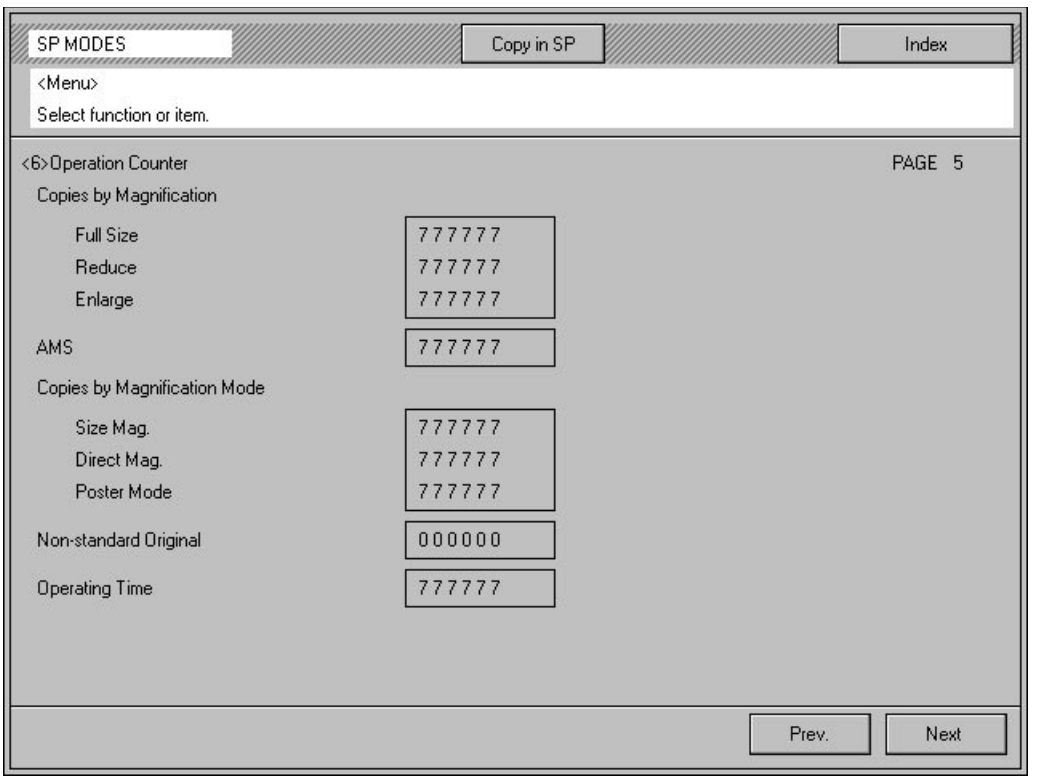


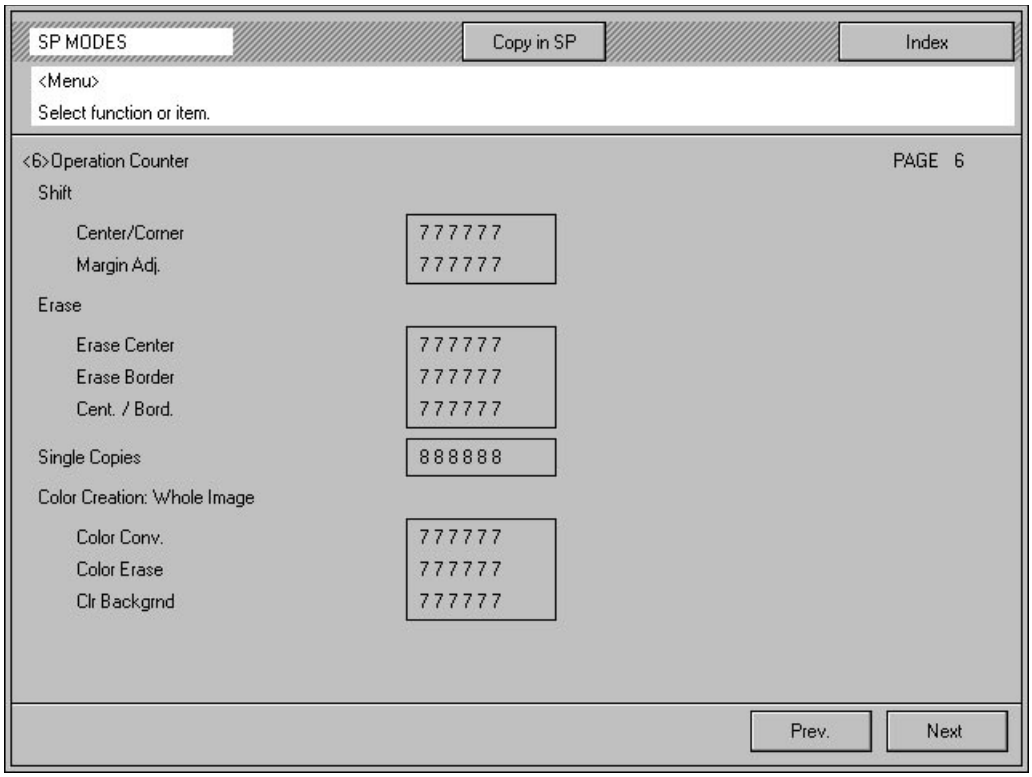




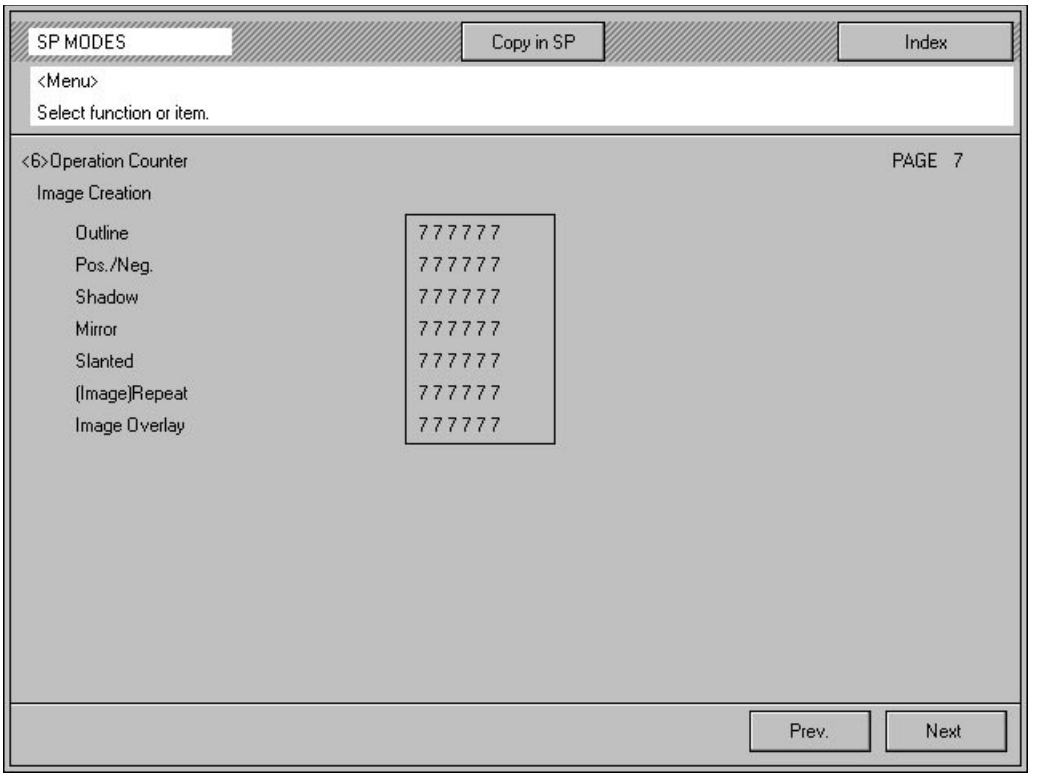
Page	Item	Function	Note
<6> -1	Original Counter	Indicates the total number of originals that have been copied in each color mode.	
	Copy Counter	Indicates the total number of scans, broken down by copy mode.	Count up method is the same as that for mecanical counters. Twin Color and SC (Single Color) counters are not used.
<6> -2	***Copies by Color Mode***	Indicates the total number of copies, broken down by color mode.	
	Development Counter	Indicates the total number of developments which have occurred for each color since the last Counter All Clear or Operation Counter Clear was performed.	
<6> -3	Original Mode	Indicates the total number of copies broken down by original mode.	
	Copies by Paper Size	Indicates the total number of copies broken down by paper size.	

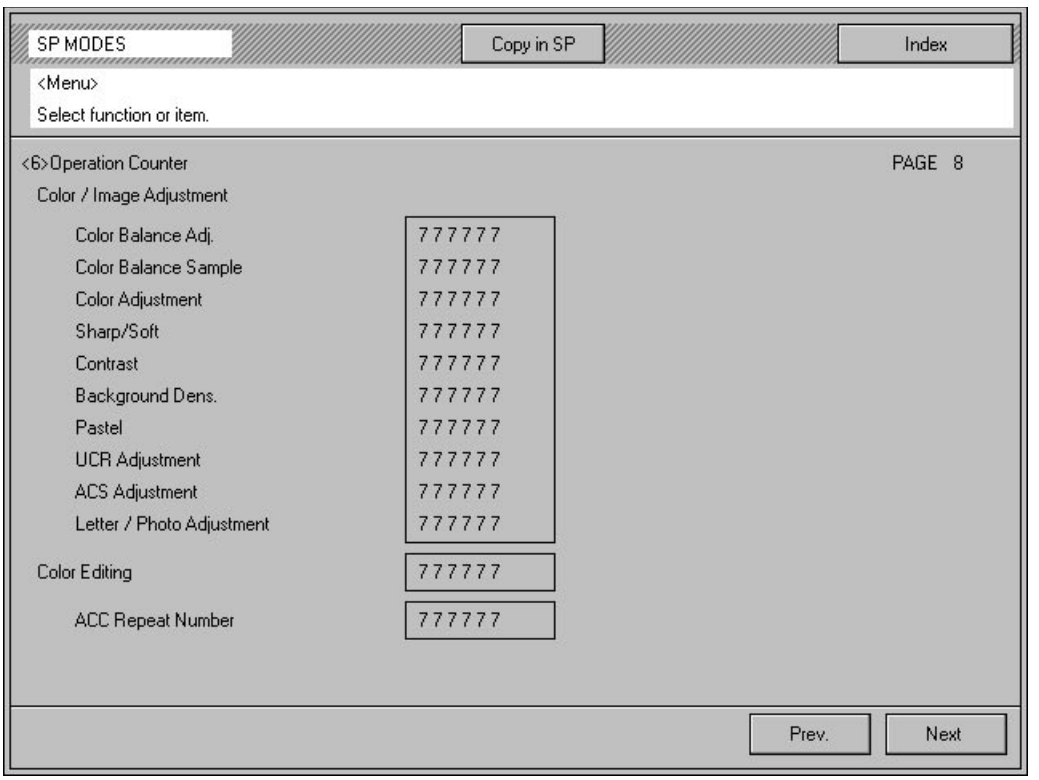

SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<6>Operation Counter
PAGE 4
Copies by Paper Feed
1st Feed 777777
2nd Feed 777777
3rd Feed 777777
By-pass Feed Total 777777
Normal: Face Side 777777
Normal: Duplex: Back Side 777777
Thick Paper 777777
Thick: Face Side 777777
Thick: Duplex: Back Side 777777
OHP 777777
Non-standard Paper 777777
APS 888888
Prev.
Next


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<6>Operation Counter
PAGE 5
Copies by Magnification
Full Size 777777
Reduce 777777
Enlarge 777777
AMS 777777
Copies by Magnification Mode
Size Mag. 777777
Direct Mag. 777777
Poster Mode 777777
Non-standard Original 000000
Operating Time 777777
Prev.
Next

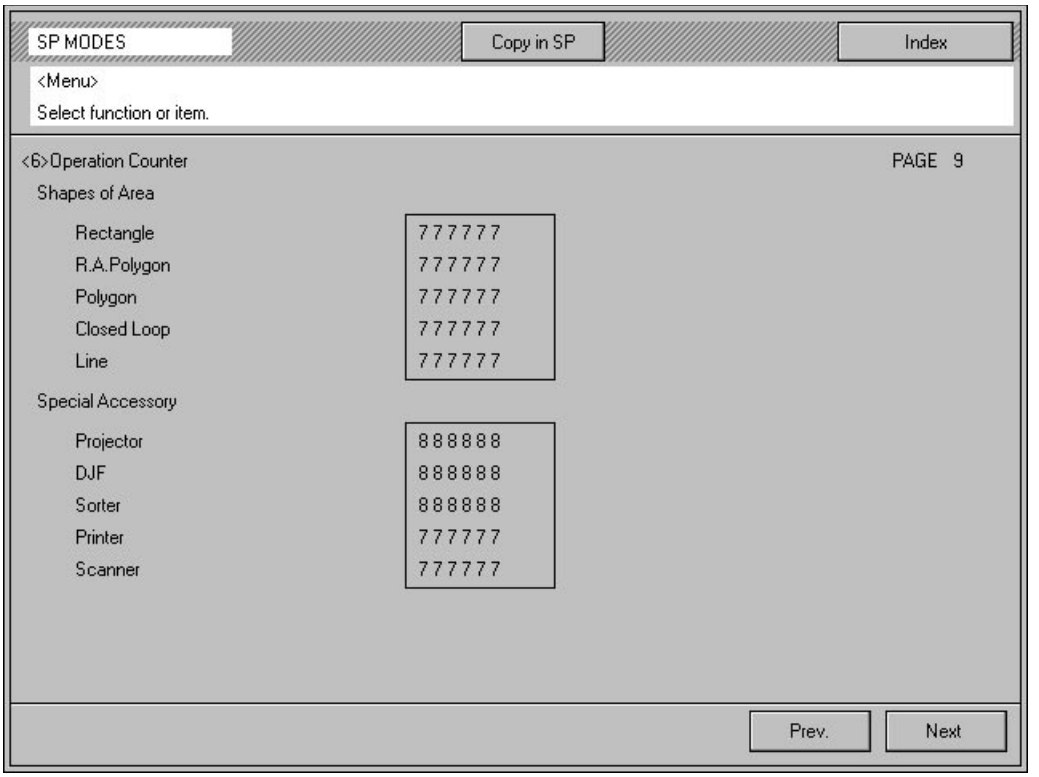


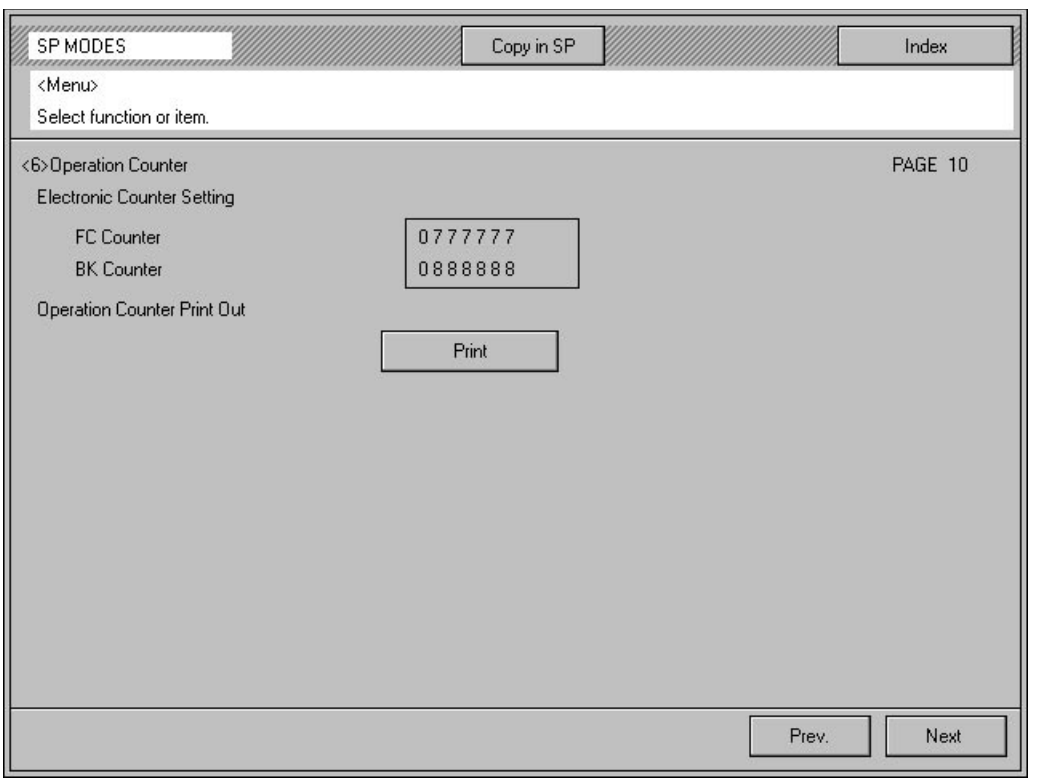
Page	Item	Function	Note
<6> -4	Copies by Paper Feed	Indicates the total number of copies broken down by paper feed station.	
	APS	Indicates the total number of copies made in APS mode.	
<6> -5	Copies by Magnification	Indicates the total number of copies broken down by magnification range.	
	AMS	Indicates the total number of copies made in AMS mode.	
	Non-standard Original	Indicates the total number of non-standard originals.	
	Operating Time	Indicates the total operation time.	Unit: Hours
<6> -6	Shift	Indicates the total number of copies made in Centering/Cornering and Margin Adjustment modes.	
	Erase	Indicates the total number of copies broken down by erase mode.	
	Single Copies	Indicates the total number of copies made in Series copy mode.	


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<6>Operation Counter
PAGE 7
Image Creation
Outline 777777
Pos./Neg. 777777
Shadow 777777
Mirror 777777
Slanted 777777
(Image)Repeat 777777
Image Overlay 777777
Prev.
Next


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<6>Operation Counter
PAGE 8
Color / Image Adjustment
Color Balance Adj. 777777
Color Balance Sample 777777
Color Adjustment 777777
Sharp/Soft 777777
Contrast 777777
Background Dens. 777777
Pastel 777777
UCR Adjustment 777777
ACS Adjustment 777777
Letter / Photo Adjustment 777777
Color Editing 777777
ACC Repeat Number 777777
Prev.
Next

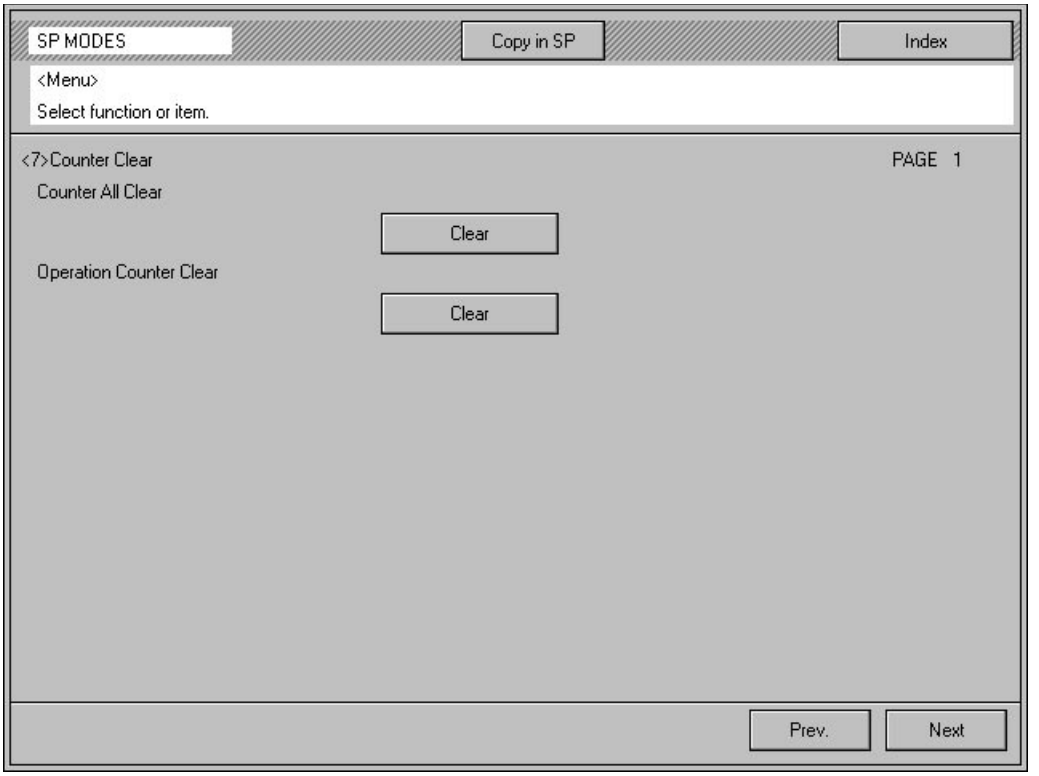
Page	Item	Function	Note
<6> -7	Image Creation	Indicates the total number of copies made in image creation modes.	
<6> -8	Color Creation: Whole Image	Indicates the total number of copies broken down by color creation mode used for the whole copy image.	
	Color/Image Adjustment	Indicates the total number of copies made with color Image adjustment modes.	
	Color Editing	Indicates the total number of copies made with the area editing mode.	

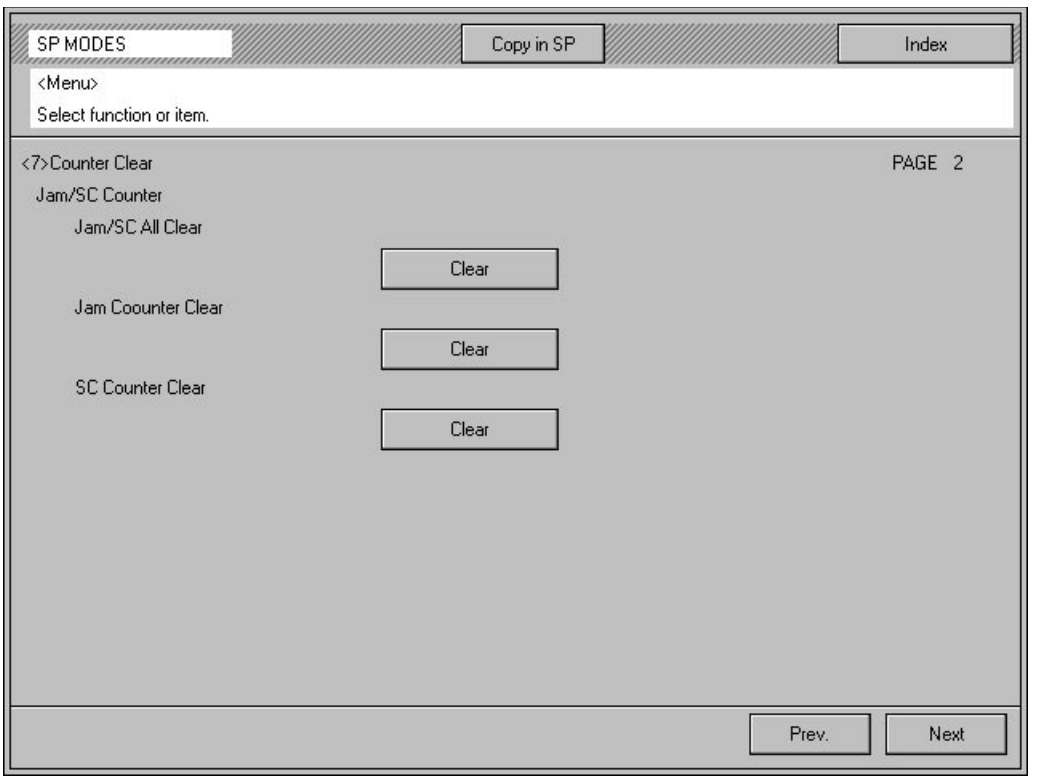

SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<6>Operation Counter
PAGE 9
Shapes of Area
Rectangle
R.A.Polygon
Polygon
Closed Loop
Line
777777
777777
777777
777777
777777
Special Accessory
Projector
DJF
Sorter
Printer
Scanner
888888
888888
888888
777777
777777
Prev.
Next


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<6>Operation Counter
PAGE 10
Electronic Counter Setting
FC Counter
BK Counter
0777777
0888888
Operation Counter Print Out
Print
Prev.
Next

Page	Item	Function	Note
<6> -9	Area Shapes	Indicates the total number of editing areas broken down by area shape.	
	Special Accessory	Indicates the total number of copies for each peripheral.	
<6> -10	***Electronic Counter Setting***	Not used.	
	Operation Counter Print Out	Prints out all the operation counters.	A4 sideways/11" x 8 1/2" or A3/11" x 17" paper should be loaded in the tray or the by-pass feed table.

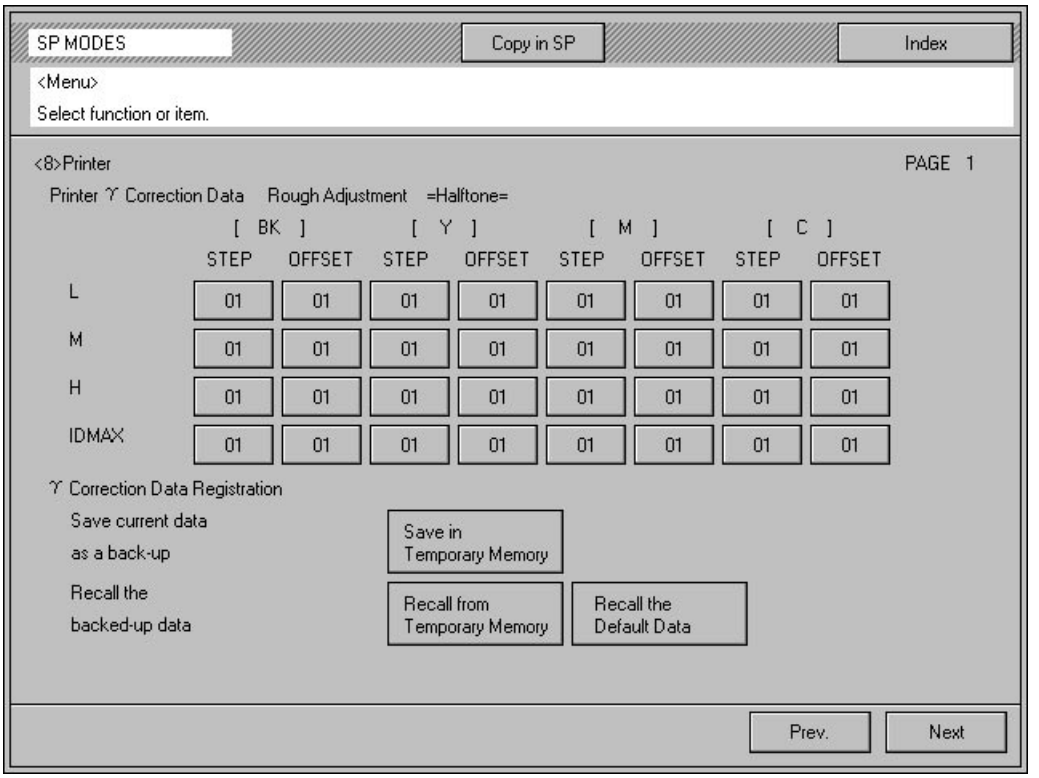
1.2.7 [7] Counter Clear

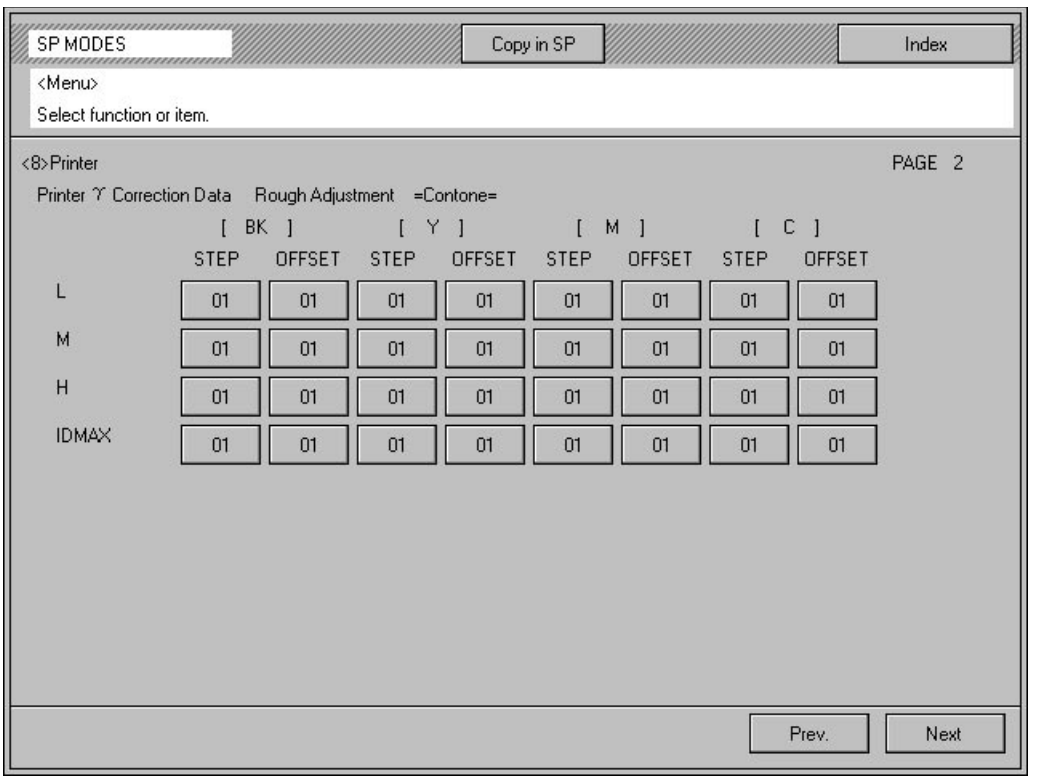




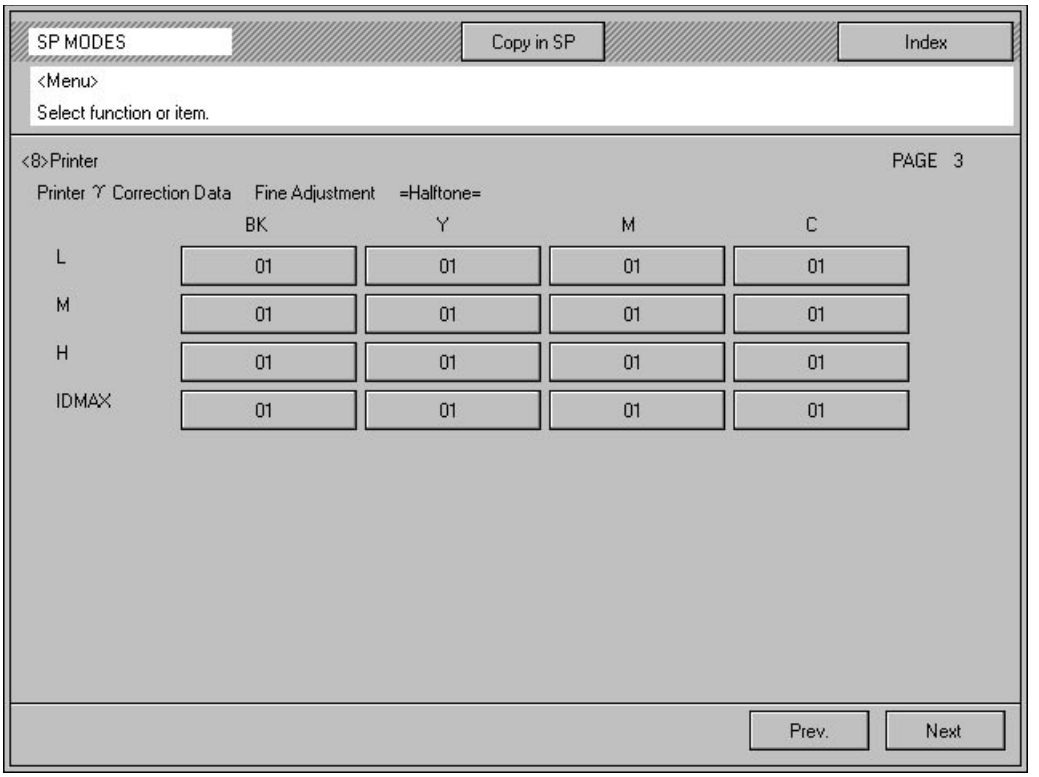
Page	Item	Function	Note
<7> -1	Counter All Clear	Clears all counters	Procedure: 1. Touch the clear key. 2. The display asks Yes or No. If you are sure you want to clear, touch Yes. If you do not want to clear, touch No.
	Operation Counter Clear	Clears all operation counters	
<7> -2	Jam/SC Counter	Clears all jam and SC counters	
		Clears all jam counters	
		Clears all SC counters	

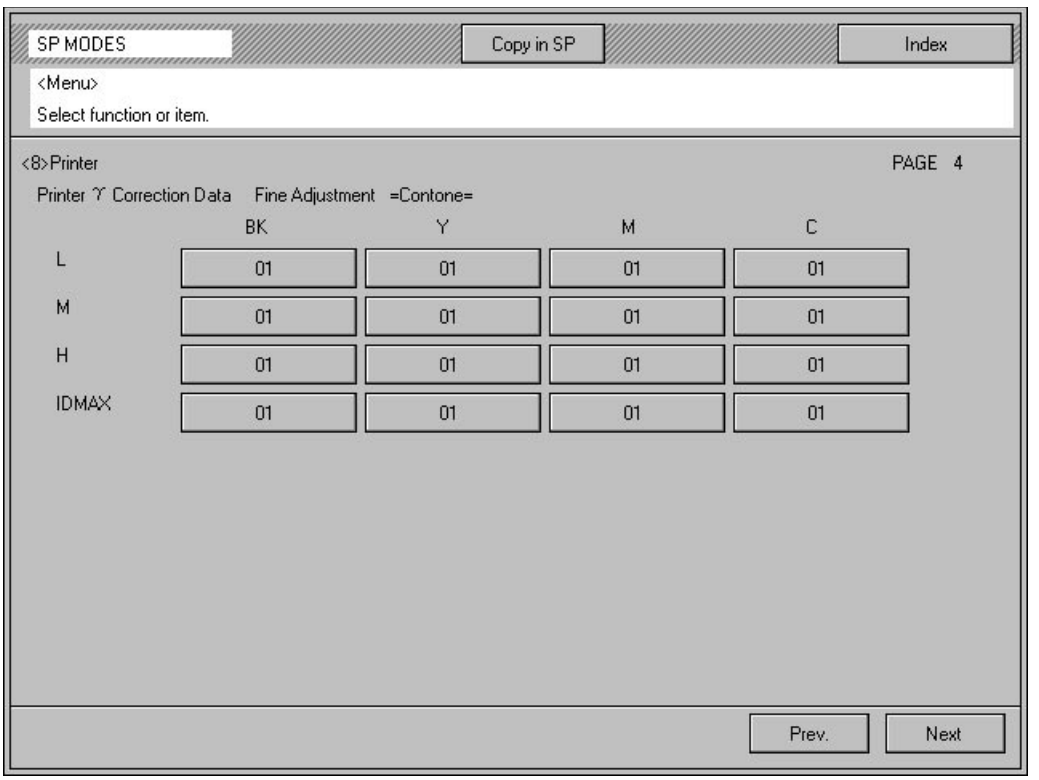
1.2.8 [8] Printer

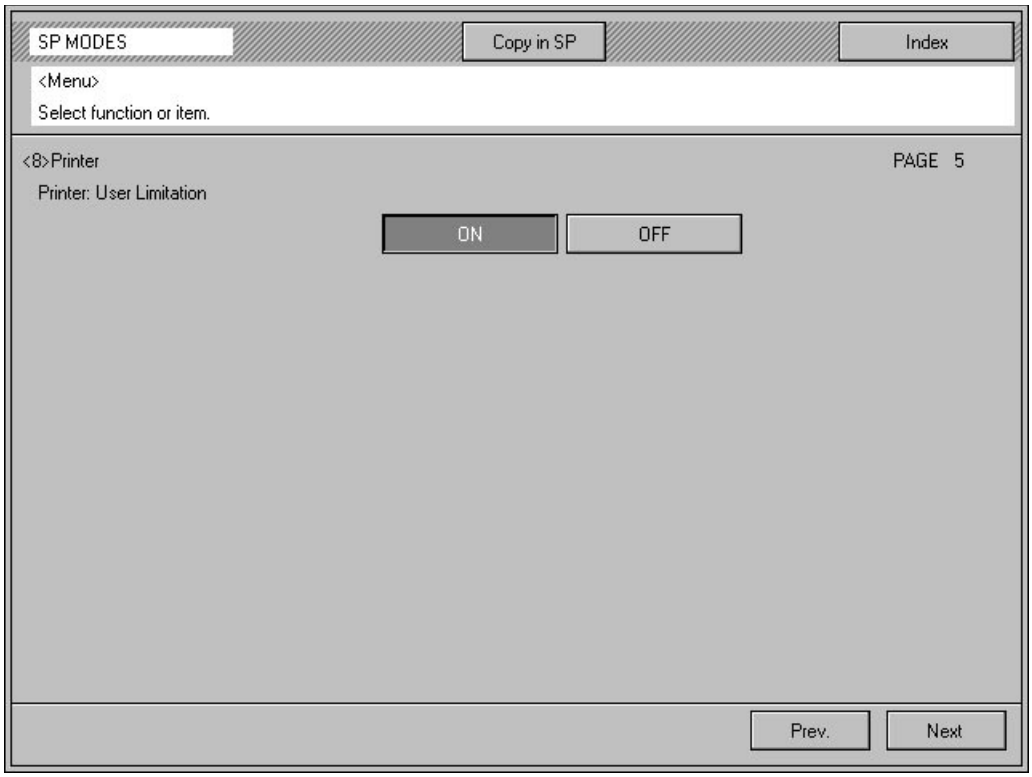

SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<8>Printer
PAGE 1
Printer γ Correction Data Rough Adjustment =Halftone=
[BK] [Y] [M] [C]
STEP OFFSET STEP OFFSET STEP OFFSET STEP OFFSET
L 01 01 01 01 01 01 01 01
M 01 01 01 01 01 01 01 01
H 01 01 01 01 01 01 01 01
IDMAX 01 01 01 01 01 01 01 01
γ Correction Data Registration
Save current data as a back-up
Save in Temporary Memory
Recall the backed-up data
Recall from Temporary Memory
Recall the Default Data
Prev.
Next


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<8>Printer
PAGE 2
Printer γ Correction Data Rough Adjustment =Contone=
[BK] [Y] [M] [C]
STEP OFFSET STEP OFFSET STEP OFFSET STEP OFFSET
L 01 01 01 01 01 01 01 01
M 01 01 01 01 01 01 01 01
H 01 01 01 01 01 01 01 01
IDMAX 01 01 01 01 01 01 01 01
Prev.
Next

Page	Item	Function	Note
<8> -1	Printer γ Correction Dat. Rough Adjustment =Halftone=	Adjusts each color's image density. (Halftone mode rough adjustment)	**Do not change the STEP values in the field.**
	γ ***Correction Data Registration***	Saves or recalls the printer γ correction data for Halftone & Contone rough adjustment and Halftone & Contone fine adjustment in the temporary memory or the permanent memory. ***Saves current data as back-up*** Saves the current printer γ correction data in the temporary memory. ***Recalls the back-up data*** Recalls the printer γ correction data from the memory.	The printer γ correction for the printer function is not adjusted at the factory. The default data is kept in memory and this cannot be overwritten. • The current settings will be saved in the temporary memory automatically after performing the ACC. • "Recall from Temporary Memory" can be used to undo the last ACC.
<8> -2	Printer γ Correction Dat. Rough Adjustment =Contone=	Adjusts each color's image density. (Contone mode rough adjustment)	**Do not change the STEP values in the field.**

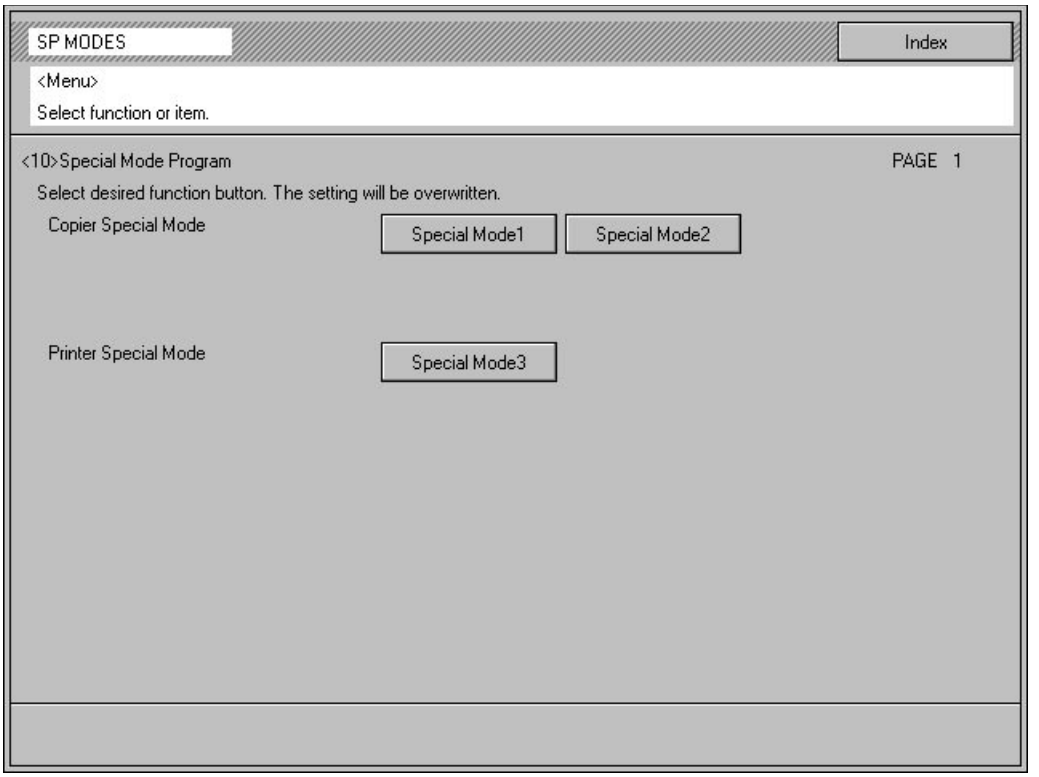

SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<8>Printer
PAGE 3
Printer γ Correction Data Fine Adjustment =Halftone=
BK Y M C
L 01 01 01 01
M 01 01 01 01
H 01 01 01 01
IDMAX 01 01 01 01
Prev.
Next


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<8>Printer
PAGE 4
Printer γ Correction Data Fine Adjustment =Contone=
BK Y M C
L 01 01 01 01
M 01 01 01 01
H 01 01 01 01
IDMAX 01 01 01 01
Prev.
Next



Page	Item	Function	Note
<8> -3	Printer γ Correction Dat. Fine Adjustment =Halftone=	Adjusts each color image density. (Halftone mode fine adjustment)	**Do not adjust in the field.**
<8> -4	Printer γ Correction Dat. Fine Adjustment =Contone=	Adjusts each color image density. (Contone mode fine adjustment)	**Do not adjust in the field.**
<8> -5	Printer: User Limitation	Limits users from the remote terminal.	Default: OFF **Do not change the setting when connected to the Fiery Controller.**

1.2.9 [10] Special Mode Program



Page	Item	Function	Note
<10> -1	***Copier Special Mode***	Sets the following items for Copier Special Mode 1 and 2. **<1>SP Adjustment** -1: Lead Edge Registration (Printing) -1: Paper Feed Timing -2: Paper Feed Timing: By-pass -3: Face side Fusing Temp. -3: Back side Fusing Temp. -7: Transfer Roller Bias (Normal Humidity) -8: Transfer Roller Coefficient by Humidity Range **<4>SP Special Features** -2: Printer γ Correction Data Rough Adjustment =Letter= -3: Printer γ Correction Data Rough Adjustment =Photo= -4: Printer γ Correction Data Fine Adjustment =Printed Photo= -5: Printer γ Correction Data Fine Adjustment =Glossy Photo= -6: Printer γ Correction Data Fine Adjustment =Letter=	This special mode should be used for user's special application paper which does not have good copy quality with standard settings. "<4>-5: Printer γ Correction Data Fine Adjustment = Glossy Photo=" is not effective (indication only). Special Mode 1 has the following default for very thick paper (about 200 g/m^2): <1>-7:Transfer Roller Bias (Normal Humidity) Normal Paper 1C: 1200 2C: 1500 3C: 1800 4C-L&P: 1500 ***Thick Paper*** ***1C: 1360 2C: 1500*** ***3C: 1800 4C-L&P: 1500*** OHP: S&L 1C: 2020 2C: 2080 3C: 2370 4C-L&P: 2080 Normal: Back 1C: 1200 2C: 1700 3C: 1980 4C-L&P: 1700 ***Thick: Back*** ***1C: 1600 2C: 1830*** ***3C: 2130 4C-L&P: 1830***
	Printer Special Mode	Sets the following items for Printer Special Mode 3. **<1>SP Adjustment** -1: Lead Edge Registration (Printing) -1: Paper Feed Timing -2: Paper Feed Timing: By-pass -3: Face side Fusing Temp. -3: Back side Fusing Temp. -7: Transfer Roller Bias (Normal Humidity) -8: Transfer Roller Coefficient by Humidity Range	This special mode should be used for user's special application paper (Printer mode) which does not have good copy quality with standard settings.

Service Tables

1.2.10 Input Check Mode Table

NOTE:
- Input numbers written in ***bold italic letters*** are newly added items to the base copier (A109).
- Underlined input number items are the same as the base copier (A109) but with a different input number.

Input No.	Sensor/Switch/Signal	Status	
		0	1
1	Charge corona leak detection	Not detected	Detected
2	PCC leak detection	Not detected	Detected
3	Development bias leak detection	Not detected	Detected
4	Bk-Development drive motor lock detection	Not monitoring	Monitoring (Motor rotating)
5	Color-Development drive motor lock detection	Not monitoring	Monitoring (Motor rotating)
6	Drum motor lock detection	Not monitoring	Monitoring (Motor rotating)
7	Transport motor lock detection	Not monitoring	Monitoring (Motor rotating)
8	Cleaning motor lock detection	Not monitoring	Monitoring (Motor rotating)
9	Polygon motor lock detection	Not monitoring	Monitoring (Motor rotating)
10	Bk-Sleeve motor abnormal detection	Not monitoring	Monitoring (Motor rotating)
11	Y-Sleeve motor abnormal detection	Not monitoring	Monitoring (Motor rotating)
12	M-Sleeve motor abnormal detection	Not monitoring	Monitoring (Motor rotating)
13	C-Sleeve motor abnormal detection	Not monitoring	Monitoring (Motor rotating)
14	Paper feed motor lock detection	Not monitoring	Monitoring (Motor rotating)
15	Paper discharge leak detection	Not detected	Detected
16	By-pass feed table sensor	Closed	Open
17	Front door safety switches	Closed	Open
18	LD power supply OFF detection	Not detected	Detected
19	Vertical transport set switches	Closed	Open
20	Bk - Toner end sensor	Not end	End
21	Y - Toner end sensor	Not end	End
22	M - Toner end sensor	Not end	End
23	C - Toner end sensor	Not end	End
24	Toner overflow sensor	Not full	Full
25	Registration guide set sensor	Set	Not set
26	Oil end sensor	Not end	End

Input No.	Sensor/Switch/Signal	Status	
		0	1
27	By-pass paper end sensor	Paper detected	Paper not detected
28	1st paper end sensor	Paper detected	Paper not detected
29	2nd paper end sensor	Paper detected	Paper not detected
30	3rd paper end sensor	Paper detected	Paper not detected
31	Transfer belt position sensor	Release	Touch
32	Transfer roller position sensor	Release	Touch
33	1st lift sensor	Not lifted	Lifted
34	2nd lift sensor	Not lifted	Lifted
35	3rd lift sensor	Not lifted	Lifted
36	1st paper feed sensor	Paper not detected	Paper detected
37	2nd paper feed sensor	Paper not detected	Paper detected
38	3rd paper feed sensor	Paper not detected	Paper detected
39	Registration sensor	Paper not detected	Paper detected
40	Transport sensor	Paper not detected	Paper detected
41	Exit sensor	Paper not detected	Paper detected
42	1st paper size switch-1	Actuated	Not actuated
43	1st paper size switch-2	Actuated	Not actuated
44	1st paper size switch-3	Actuated	Not actuated
45	1st paper size switch-4	Actuated	Not actuated
46	1st paper size switch-5	Actuated	Not actuated
47	2nd paper size switch-1	Actuated	Not actuated
48	2nd paper size switch-2	Actuated	Not actuated
49	2nd paper size switch-3	Actuated	Not actuated
50	2nd paper size switch-4	Actuated	Not actuated
51	2nd paper size switch-5	Actuated	Not actuated
52	By-pass paper size-1	Grounded (Low)	Not grounded (High)
53	By-pass paper size-2	Grounded (Low)	Not grounded (High)
54	By-pass paper size-3	Grounded (Low)	Not grounded (High)
55	By-pass paper size-4	Grounded (Low)	Not grounded (High)
56	3rd tray set switch	Not set	Set

Input No.	Sensor/Switch/Signal	Status	
		0	1
57	By-pass length sensor	Paper not detected	Paper detected
58	Sorter connection detection	Not connected	Connected
59	Toner tank set detection	Set	Not set
201	Scanner H.P. sensor	Not actuated	Actuated (at H.P.)
202	Platen cover position sensor	Not actuated	Actuated (Closed)
203	DF position sensor	Not actuated	Actuated (Closed)

1.2.11 Output Check Mode Table

NOTE:
- Input numbers written in ***bold italic letters*** are newly added items to the base copier (A109).
- Underlined input number items are the same as the base copier but with a different input number (A109).

NOTE: The motors keep turning in this mode regardless of the upper or lower limit sensor signal. Do not keep the electrical component on for a long time, to prevent mechanical or electrical damage.

Output No.	Electrical Component
1	Charge corona with grid - Bk
2	Charge corona with grid - C
3	Charge corona with grid - M
4	Charge corona with grid - Y
5	Development bias - Bk
6	Development bias - C
7	Development bias - M
8	Development bias - Y
9	Transfer belt bias - 1C
10	Transfer belt bias - 2C / 1st color
11	Transfer belt bias - 2C / 2nd color
12	Transfer belt bias - 3C / 1st color
13	Transfer belt bias - 3C / 2nd color
14	Transfer belt bias - 3C / 3rd color
15	Transfer belt bias - 4C / 1st color
16	Transfer belt bias - 4C / 2nd color
17	Transfer belt bias - 4C / 3rd color
18	Transfer belt bias - 4C / 4th color
19	Transfer belt bias (Back side) - 1C
20	Transfer belt bias (Back side) - 2C / 1st color
21	Transfer belt bias (Back side) - 2C / 2nd color
22	Transfer belt bias (Back side) - 3C / 1st color
23	Transfer belt bias (Back side) - 3C / 2nd color
24	Transfer belt bias (Back side) - 3C / 3rd color
25	Transfer belt bias (Back side) - 4C / 1st color
26	Transfer belt bias (Back side) - 4C / 2nd color
27	Transfer belt bias (Back side) - 4C / 3rd color
28	Transfer belt bias (Back side) - 4C / 4th color
29	PCC
30	Drum cleaning bias (BR)
31	Transfer roller bias - Normal paper - 1C
32	Transfer roller bias - Normal paper - 2C
33	Transfer roller bias - Normal paper - 3C
34	Transfer roller bias - Normal paper - 4C (Letter)

Output No.	Electrical Component
35	Transfer roller bias - Normal paper - 4C (Photo)
36	Transfer roller bias - OHP (Lengthwise) - 1C
37	Transfer roller bias - OHP (Lengthwise) - 2C
38	Transfer roller bias - OHP (Lengthwise) - 3C
39	Transfer roller bias - OHP (Lengthwise) - 4C (Letter)
40	Transfer roller bias - OHP (Lengthwise) - 4C (Photo)
41	Transfer roller bias - OHP (Sideways) - 1C
42	Transfer roller bias - OHP (Sideways) - 2C
43	Transfer roller bias - OHP (Sideways) - 3C
44	Transfer roller bias - OHP (Sideways) - 4C (Letter)
45	Transfer roller bias - OHP (Sideways) - 4C (Photo)
46	Transfer roller bias - Thick Paper - 1C
47	Transfer roller bias - Thick Paper - 2C
48	Transfer roller bias - Thick Paper - 3C
49	Transfer roller bias - Thick Paper - 4C (Letter)
50	Transfer roller bias - Thick Paper - 4C (Photo)
51	Transfer roller bias - Normal Paper (Back side) - 1C
52	Transfer roller bias - Normal Paper (Back side) - 2C
53	Transfer roller bias - Normal Paper (Back side) - 3C
54	Transfer roller bias - Normal Paper (Back side) - 4C (Letter)
55	Transfer roller bias - Normal Paper (Back side) - 4C (Photo)
56	Transfer roller bias - Thick Paper (Back side) - 1C
57	Transfer roller bias - Thick Paper (Back side) - 2C
58	Transfer roller bias - Thick Paper (Back side) - 3C
59	Transfer roller bias - Thick Paper (Back side) - 4C (Letter)
60	Transfer roller bias - Thick Paper (Back side) - 4C (Photo)
61	Discharge plate bias - Normal paper
62	Discharge plate bias - OHP
63	Discharge plate bias - Thick paper
64	Discharge plate bias - Normal paper (Back side)
65	Discharge plate bias - Thick paper (Back side)
66	Transfer belt motor (180 mm/sec)
67	Transfer belt motor (90mm/sec)
68	Bk-Development drive motor
69	Color development drive motor
70	Drum motor - Forward
71	Drum motor - Reverse
72	Cleaning motor
73	Polygon motor
74	Bk-Sleeve motor - Forward
75	Bk-Sleeve motor - Reverse
76	Y-Sleeve motor - Forward
77	Y-Sleeve motor - Reverse

Output No.	Electrical Component
78	M-Sleeve motor - Forward
79	M-Sleeve motor - Reverse
80	C-Sleeve motor - Forward
81	C-Sleeve motor - Reverse
82	Y-Toner supply motor - Forward
83	Y-Toner supply motor - Reverse
84	M-Toner supply motor - Forward
85	M-Toner supply motor - Reverse
86	C-Toner supply motor - Forward
87	C-Toner supply motor - Reverse
88	B- Toner supply motor - Forward
89	Bk-Toner supply motor - Reverse
90	1st lift motor - Forward
91	1st lift motor - Reverse
92	2nd lift motor - Forward
93	2nd lift motor - Reverse
94	3rd lift motor - Forward
95	3rd lift motor - Reverse
96	Paper feed motor
97	Transport motor (180 mm/sec)
98	Transport motor (90 mm/sec)
99	Transport fans
100	Development exhaust fan - Low
101	Development exhaust fan - High
102	Fusing exhaust fan - Low
103	Fusing exhaust fan - High
104	Charge inlet fan
105	LD cooling fan
106	Polygon motor cooling fan - Low
107	Polygon motor cooling fan - High
108	IPU cooling fan
109	Optics exhaust fan
110	Cleaning blade solenoid - Touch
111	Cleaning blade solenoid - Release
112	Lubricant bar solenoid - Touch
113	Lubricant bar solenoid - Release
114	Cleaning entrance seal solenoid - Touch
115	Cleaning entrance seal solenoid - Release
116	By-pass pick-up solenoid
117	1st pick-up solenoid
118	2nd pick-up solenoid
119	3rd pick-up solenoid
120	1st separation roller solenoid

Output No.	Electrical Component
121	2nd separation roller solenoid
122	3rd separation roller solenoid
123	Fusing heater - Hot roller
124	Fusing heater - Pressure roller
125	Anti-condensation heater relay (on noise filter board)
126	Main power relay
127	Potential sensor calibration relay (on H.V.S. Board – B)
128	Transfer belt position clutch
129	Transfer roller position clutch
130	Registration clutch
131	By-pass feed clutch
132	1st Feed clutch
133	2nd Feed clutch
134	3rd Feed clutch
135	Quenching lamp
136	Pre-transfer lamp
201	Optics cooling fan
202	Scanner motor current OFF
203	Exposure lamp ON

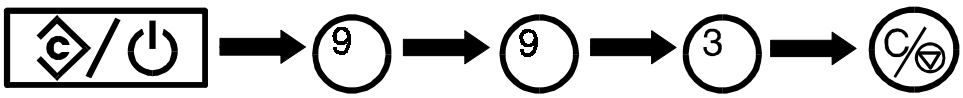
2. ADMINISTRATOR TOOLS

2.1 ADMINISTRATOR TOOLS ACCESS PROCEDURE

This access procedure is for a key operator (copier's administrator), allowing to access the administrator tools.

The procedure is as follows:

1. Press the **Clear Modes/Stand-by** key.
2. Input "993" using the **Number** keys.
3. Hold down the **Clear/Stop** key for more than three seconds.



NOTE: This procedure is not described in the operating instructions.

The administrator tools contain the following settings:

[1] Set Operation Modes
Maximum copy number and Auto tray switching

[2] Restrict Color Modes (User code will be required to use restricted modes.)
Full Color / Black / Single Color / Twin color

NOTE: To enable "Restrict Color Modes", set SP mode "<4>-9 Set User Code(s)" to ON and remove the key counter shorting connector.

[3] Set User Code(s)
Register / Change / Delete

[4] Check/Reset Specified Copy Counter

[5] Print All Copy Counters

[6] Reset All Copy Counters

3. TEST POINTS/DIP SWITCHES/LEDS

3.1 MAIN CONTROL BOARD

The function of the test points, DIP switches, and LEDs are the same as those of the base copier (A109).

3.2 IPU BOARD

3.2.1 DIP switches

SW301-1:

Selects the accuracy level of synchronizing the video signal clock (18.6 MHz) with the laser synchronizing signal.
OFF: 1/4 clock ON: 1/10 clock (**MUST BE ON**)

SW301-2:

Designer's use only (**MUST BE OFF**, otherwise the entire background appears dirty.)

SW301-3, 4, 5:

Used by designers for monitoring signals. (NORMALLY OFF)

3.2.2 LEDs

LED 308:

Laser synchronizing signal monitor

LED309:

Monitor for the combination of SW301-3, 4, 5

4. PREVENTIVE MAINTENANCE SCHEDULE

4.1 PM TABLE

NOTE: The numbers mentioned for PM intervals indicate the number of *scans*.
Items written in *italic letters* are different parts from the base copier (A109). Items in tinted columns are newly added parts.

Symbol key: **C**: Clean **R:** Replace **L:** Lubricate **I**: Inspect

ITEM	EM	40K	80K	120K	160K	200K	NOTE
OPTICS							
Platen Cover Sheet	C	C	C	C	C	C	Replace if necessary.
Exposure Glass	C	C	C	C	C	C	Alcohol or glass cleaner
Mirrors, Reflectors		C	C	C	C	C	Cotton pad with water, or blower brush
Lens, Correction Filter		C	C	C	C	C	Blower brush
Exposure Lamp				R			
Scanner Guide Rails		C	C	C	C	C	Dry cloth
Original Size Sensors			C		C		Blower brush
Optics Cooling Fan Filter		R	R	R	R	R	(**NOTE 1**)
PAPER FEED (Main Body)							
Registration Rollers		C	C	C	C	C	Alcohol
Relay Roller (Drive)		C	C	C	C	C	Alcohol
By-pass Pick-up Roller	C	C	C	C	C	R	Water
By-pass Paper Feed Roller	C	C	C	C	C	R	Water
By-pass Separation Roller	C	C	C	C	C	R	Water
By-pass Feed Pad			C		C		Alcohol or water
Paper Feed Guide Plate			C		C		Alcohol or water
Registration Sensor		C	C	C	C	C	Blower brush
PAPER FEED (Paper Supply Unit)							
Paper Guide Plate, Vertical Transport Plate			C		C		Alcohol or water
Pick-up Rollers	C	C	C	C	C	R	Water
Paper Feed Rollers	C	C	C	C	C	R	Water
Separation Rollers	C	C	C	C	C	R	Water
Vertical Transport Rollers			C		C		Alcohol
Vertical Transport Plate			C		C		Alcohol or water
Tray Bottom Plate Pad		C	C	C	C	C	Alcohol or water
DEVELOPMENT							
Developer (Y/M/C/Bk)			R		R		Y/M/C/Bk should be replaced all together.

ITEM	EM	40K	80K	120K	160K	200K	NOTE
Sleeve Roller Side Seals		C	C	C	C	C	Replace if damaged or wavy.
Development Unit Casing		C	C	C	C	C	Dry cloth or vacuum cleaner (**ATTENTION 1**)
Development Drive Gears		C	C	C	C	C	Blower brush or vacuum cleaner
Toner Supply Receptacles, Toner Supply Joints		C	C	C	C	C	Dry cloth or vacuum cleaner
Toner Tank Cover, Toner Bottle Guides		C	C	C	C	C	Dry cloth or vacuum cleaner
Development Duct Lower Filter		C	C	C	C	C	Blower brush or vacuum cleaner Replace if necessary. (**NOTE 1**)
Development Filter		R	R	R	R	R	(**NOTE 1**)
Development Ozone Filter		R	R	R	R	R	(**NOTE 1**)
Development Exhaust Fan Filters		R	R	R	R	R	(**NOTE 1**)
AROUND THE DRUM							
Charge Corona Wire	C	C	R	C	R	C	Clean with dry cloth.
Charge Corona Grid	C	C	R	C	R	C	Blower brush, water, then dry cloth (**ATTENTION 2**)
Corona Wire/Grid Cleaner		R	R	R	R	R	
Wire/Grid Cleaner Spiral Shaft		C	C	C	C	C	Wet cotton
Charge corona casing	C	C	C	C	C	C	Wet cotton and dry cloth
Charge corona end blocks	C	C	C	C	C	C	Dry cloth
Quenching Lamp	C	C	C	C	C	C	Dry cloth
Drum Potential Sensor		C	C	C	C	C	Blower brush and dry cloth
ID Sensor		C	C	C	C	C	Dry cloth
Charge Inlet Fan Filter		R	R	R	R	R	(**NOTE 1**)
DRUM CLEANING							
Cleaning Blade		R	R	R	R	R	Dust with setting powder after replacement or cleaning.
Cleaning Brush		I	R	I	R	I	Inspect if the brush functions properly.
Bias Roller Blade		C	R	C	R	C	Dust with setting powder after replacement or cleaning.
Drum Lubricant Bar		R	R	R	R	R	Replace if damaged (holes, dents, or cracks).

ITEM	EM	40K	80K	120K	160K	200K	NOTE
Cleaning Bias Roller			C		C		Dry cloth or alcohol Dust with setting powder.
Cleaning Side Seals, Casing		C	C	C	C	C	Dry cloth
Cleaning Entrance Seal	I	C	C	C	C	C	Blower brush and dry cloth Replace if it is wavy.
PCC Wire	C	C	R	C	R	C	Dry cloth
PCC Casing	C	C	C	C	C	C	Water and dry cloth
PCC End Blocks	C	C	C	C	C	C	Dry cloth
TRANSFER BELT / TRANSFER ROLLER							
Transfer Belt		R	R	R	R	R	Perform Belt Cleaning (SP<2>-3) after replacement.
Transfer Belt Unit Rollers		C	C	C	C	C	Alcohol
Transfer Belt Release Cams		L	L	L	L	L	Silicone Grease G40M (**NOTE 2**)
Belt Bias Roller Shaft		L	L	L	L	L	Silicone Grease G40M (**NOTE 2**)
Transfer Roller	I	I	I	I	I	I	Replace if the surface is damaged.
Transfer Roller Shaft		L	L	L	L	L	Silicone Grease G40M (**NOTE 3**)
Transfer Roller Blade			R		R		
Toner Catch Pan		C	C	C	C	C	Vacuum cleaner
Transfer Roller Entrance Seal		C	C	C	C	C	Dry cloth
Paper Discharge Plate		R	R	R	R	R	
Roller Lubricant Bar		R	R	R	R	R	Replace if damaged (holes, dents, or cracks).
TRANSFER BELT CLEANING							
Cleaning Blade		R	R	R	R	R	Dust with setting powder after replacement.
Cleaning Entrance Seal	I	C	C	C	C	C	Replace if damaged or wavy.
Cleaning Side Seals		C	C	C	C	C	Vacuum cleaner
Toner Catch Seals		C	C	C	C	C	Vacuum cleaner
Cleaning Unit Casing		C	C	C	C	C	Dry cloth
Belt Lubricant Bar		R	R	R	R	R	Replace if damaged (holes, dents, or cracks).
FUSING UNIT							
Hot Roller		R	R	R	R	R	(**NOTE 4**)
Heat Isolating Bushing		L	L	L	L	L	Barrierta L55/2 (**NOTE 4**)

ITEM	EM	40K	80K	120K	160K	200K	NOTE
Hot Roller Ball Bearing		C	C	C	R	C	Clean with dry cloth. (**NOTE 4**)
Pressure Roller, Pressure Roller Ball Bearing					R		Barrierta L55/2 (**NOTE 5**)
Oil Blade		C	R	C	R	C	Suitable solvent Apply silicone oil on the edge after cleaning or replacement.
Oil Supply Pad		R	R	R	R	R	
Oil Sump					C		Dry cloth and alcohol
Hot Roller Stripper		C	C	C	C	C	Suitable solvent Apply silicone oil on the top after cleaning.
Fusing Thermistor, Pressure Roller Thermistor		C	C	C	C	C	Suitable solvent Apply silicone oil on the surface after cleaning.
Oil Tank		I	C/L	I	C/L	C/L	Add silicone oil after removing paper dust with a pipette.
Fusing Drive Gears			L		L		Mobil Temp. 1 or 78 (**NOTE 4**)
Cleaning Roller, Cleaning Roller Scraper		C	C	C	C	C	Suitable solvent
Pressure Roller Cleaning Roller		C	C	C	C	C	Suitable solvent
OTHERS							
Transport Belts		C	C	C	C	C	Alcohol
Toner Collection Bottle	I	C	C	C	C	C	Clean at EM if necessary.
Inner Cooling Fan Filter		R	R	R	R	R	(**NOTE 1**)
OPTIONAL EQUIPMENT							
SORTER (A511) (Number of Copies)							
Transfer Rollers	C	C	C	C	C	C	Alcohol
Exit Rollers	C	C	C	C	C	C	Alcohol
Gears and Bushings	(L)	(L)	(L)	(L)	(L)	(L)	Lubricate if noisy.
DUAL JOB FEEDER (A376) (Number of Originals)							
ITEM	**EM**	**48K**	**96K**	**144K**	**192K**	**240K**	**NOTE**
Transport Belt	C	R	R	R	R	R	Belt cleaner Replace if necessary.
Pick-up Roller	C	C	C	C	C	C	Alcohol Replace if necessary.
Feed Roller	C	R	R	R	R	R	Alcohol Replace if necessary.

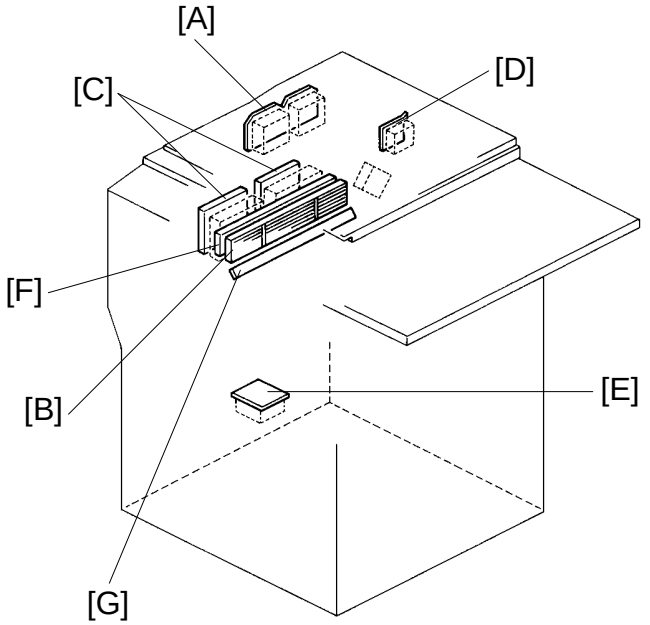
ITEM	EM	48K	96K	144K	192K	240K	NOTE
Separation Belts	C	R	R	R	R	R	Alcohol Replace if necessary.
Registration, Original width, and Feed-out Sensors	C	C	C	C	C	C	Blower brush

ATTENTION

1. When cleaning the development unit with a vacuum cleaner, always ground the casing with your fingers to avoid damaging the toner density sensor with static electricity.

2. When cleaning and drying the charge corona grid with cloth, be careful not to damage the grid by letting it catch fibers.

NOTE 1: Filters



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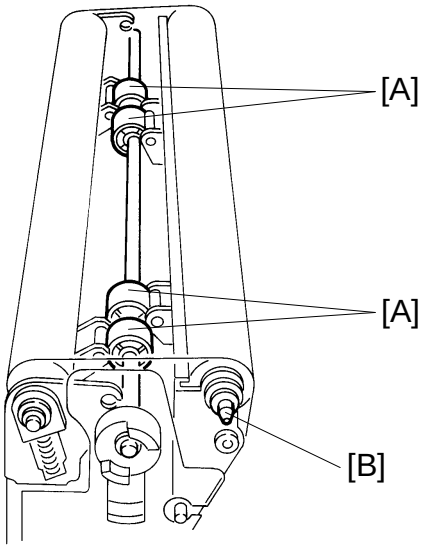
The locations of the filters which should be cleaned or replaced at PM are shown above.

1. Dust filters to be replaced at 40 K PM:
   - Optics cooling fan filter [A]
   - Development filter [B]
   - Development exhaust fan filters [C]
   - Charge inlet fan filter [D]
   - Inner cooling fan filter [E]
2. Ozone filters to be replaced at 40 K PM:
   - Development ozone filter [F]
3. Dust filter to be cleaned at 40 K PM:
   - Development duct lower filter [G]

NOTE 2: Transfer Belt Unit



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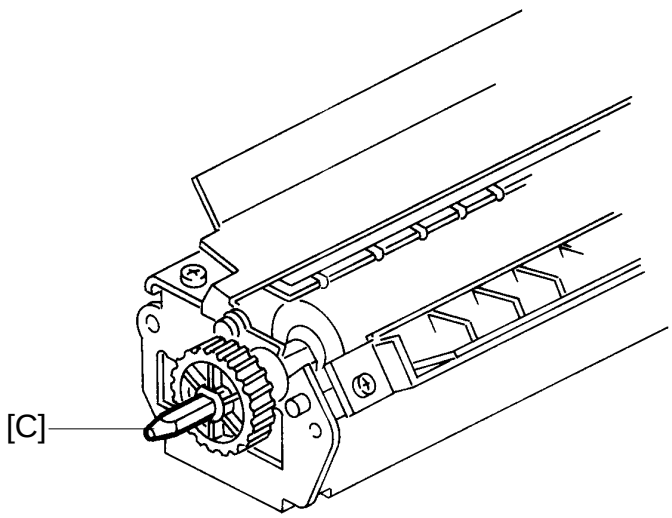
The following parts should be lubricated with silicone grease G40M every 40K scans:

- Transfer belt release cams [A]
- Belt bias roller shaft [B] (only at the end)

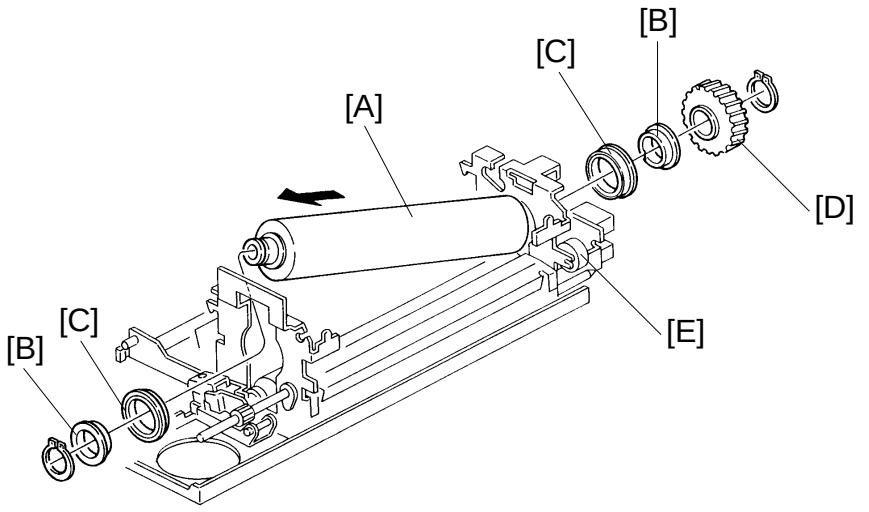
NOTE 3: Transfer Roller Unit



A172M502.img

The end of the transfer roller shaft [C] should be lubricated with silicone grease G40M every 40 K scans.

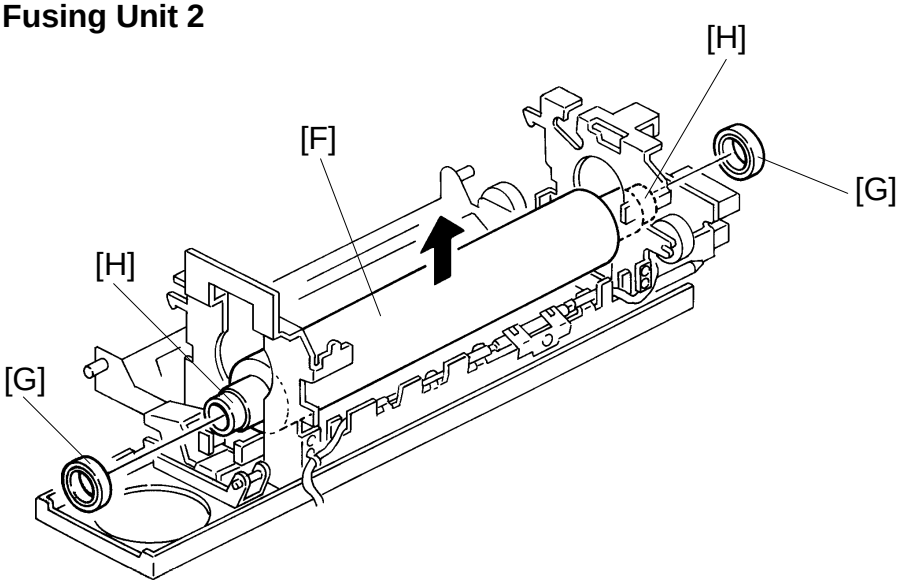
NOTE 4: Fusing Unit 1



A172M503.img

When replacing the hot roller [A] every 40 K scans, lubricate the inner and outer surface of the heat isolating bushings [B] with Barrierta L55/2. The ball bearings [C] for the hot roller should be cleaned with a dry cloth every 40 K scans and should be replaced every 160 K scans. The fusing drive gears [D, E] should be lubricated with Mobil Temp. 1 or 78 every 80 K scans.

NOTE: 5 Fusing Unit 2



A172M504.img

When replacing the pressure roller [F] and its ball bearings [G] every 160 K scans, lubricate the roller shaft [H] and inner surface of the ball bearings with Barrierta L55/2.

SECTION 5

REPLACEMENT AND ADJUSTMENT

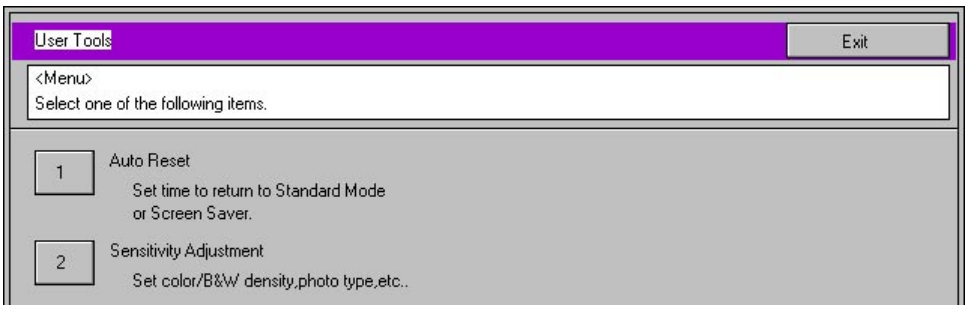
1. COLOR BALANCE ADJUSTMENT

1.1 AUTO COLOR CALIBRATION (ACC)

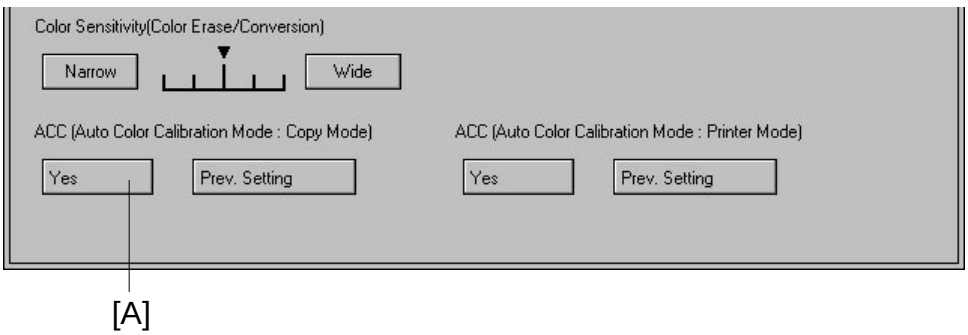
1.1.1 Calibration Procedure

Perform the Auto Color Calibration (ACC) at installation, every service call, or after replacing the drum or the developer.

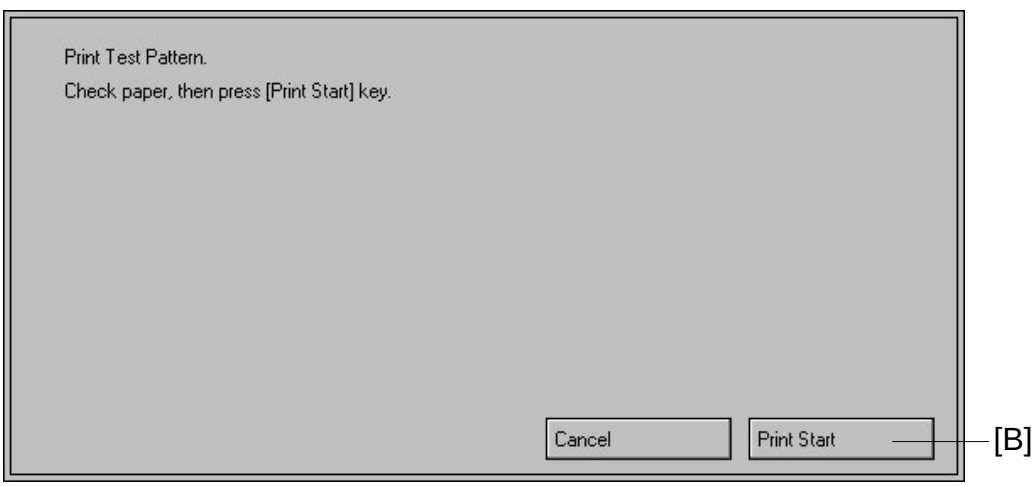
1. Press the **User Tool** key on the operation panel.
2. Select **No. 2: Sensitivity Adjustment**.



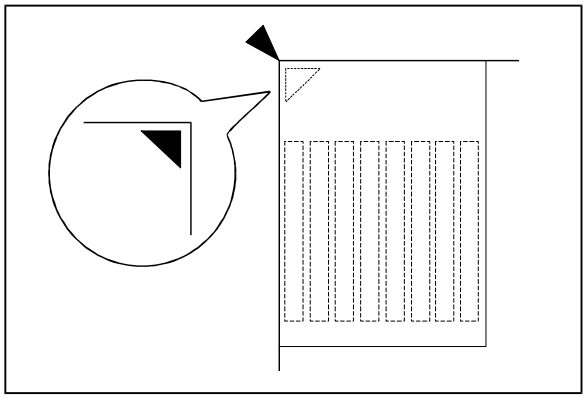
3. Press the Yes key [A].



4. Press the **Print Start** key [B]. A test pattern will be printed. It will be printed on A4 or 8$\frac{1}{2}$" x 11" sideways. If there is no paper of these sizes available, it will be printed on a larger size.



5. Place the test pattern on the exposure glass as shown in the illustration. If the copier is equipped with an optional dual job feeder, put the test pattern face-up on top of several sheets of white paper of the same size. Then place all the sheets face-down on the exposure glass.



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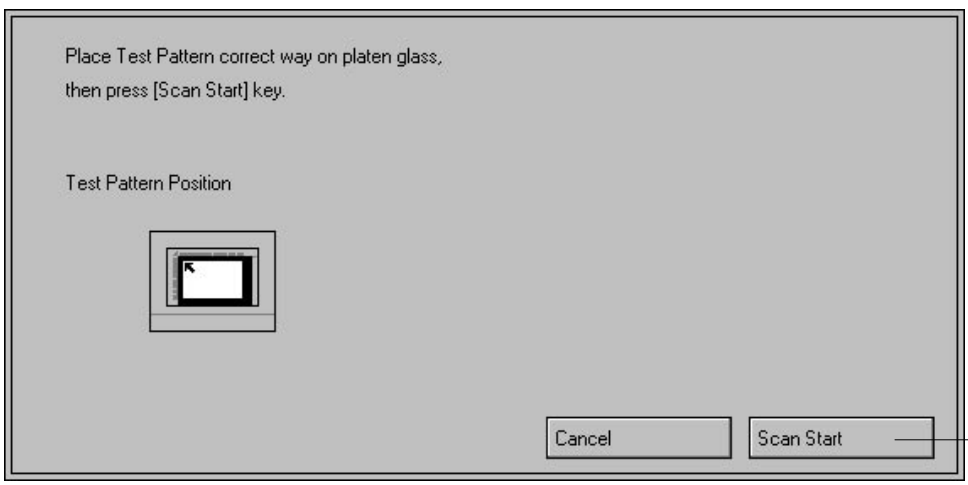
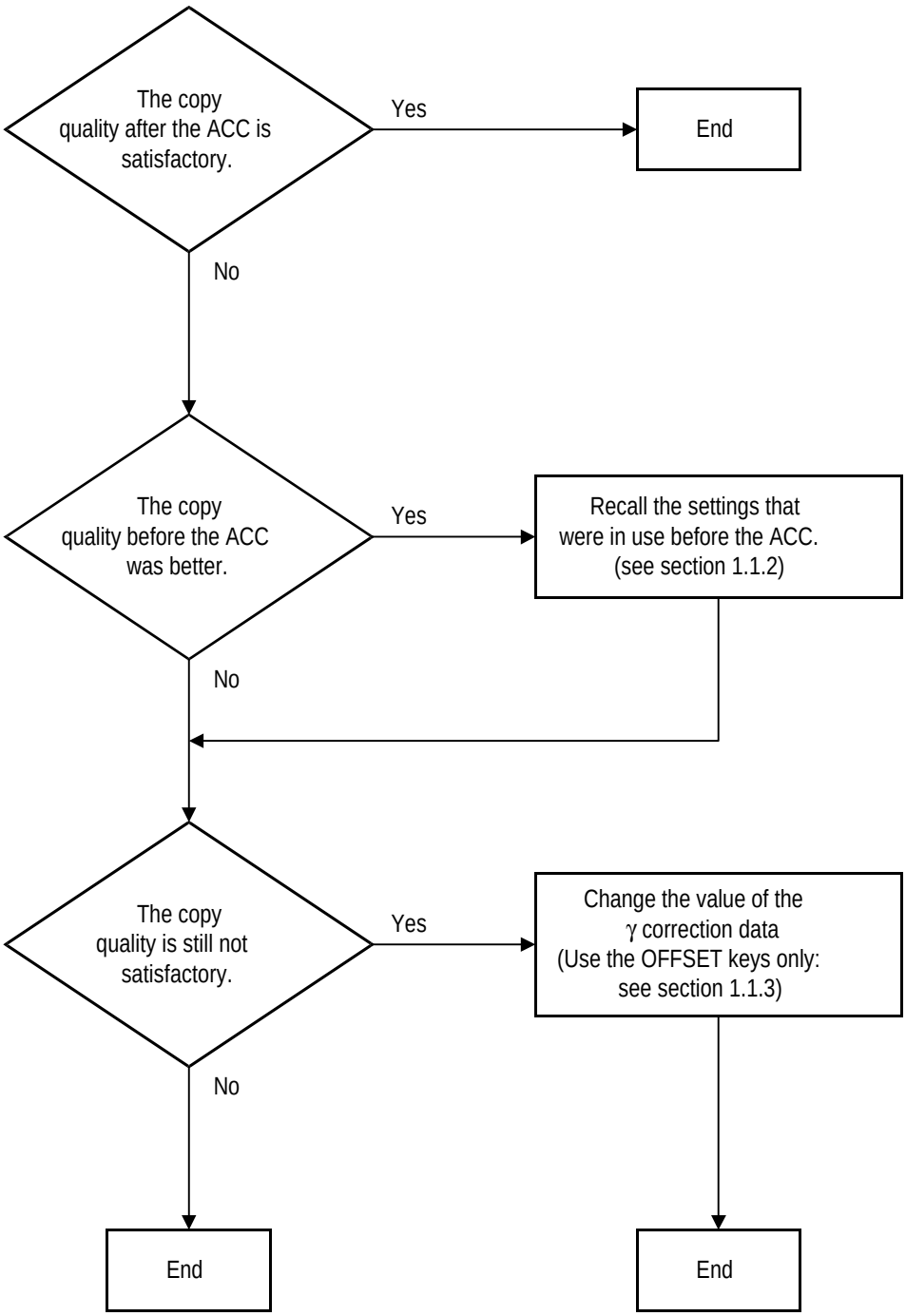
6. Press the **Scan Start** [C] key.
   The γ correction data will be automatically adjusted.



7. Make copies using the C-4 Test chart in letter mode and printed photo mode.
8. Compare the copies made before the ACC (Auto Color Calibration) and after the ACC.

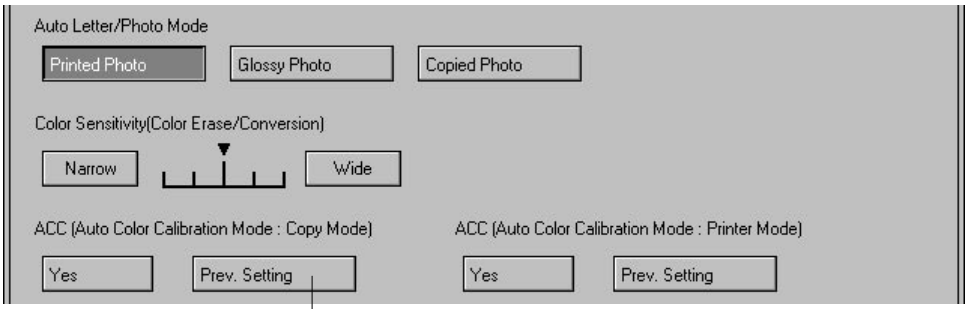
- If necessary, adjust the machine as shown in the following flow chart.


The copy quality after the ACC is satisfactory.
Yes
End
No
The copy quality before the ACC was better.
Yes
Recall the settings that were in use before the ACC. (see section 1.1.2)
No
The copy quality is still not satisfactory.
Yes
Change the value of the γ correction data (Use the OFFSET keys only: see section 1.1.3)
No
End
End

A172R505.wmf

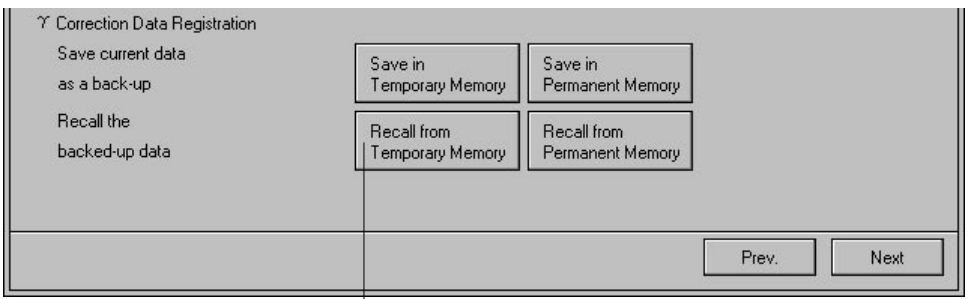
1.1.2 To recall the settings that were in use before the ACC

Touch the **Prev. Setting** [A] key.



[A]

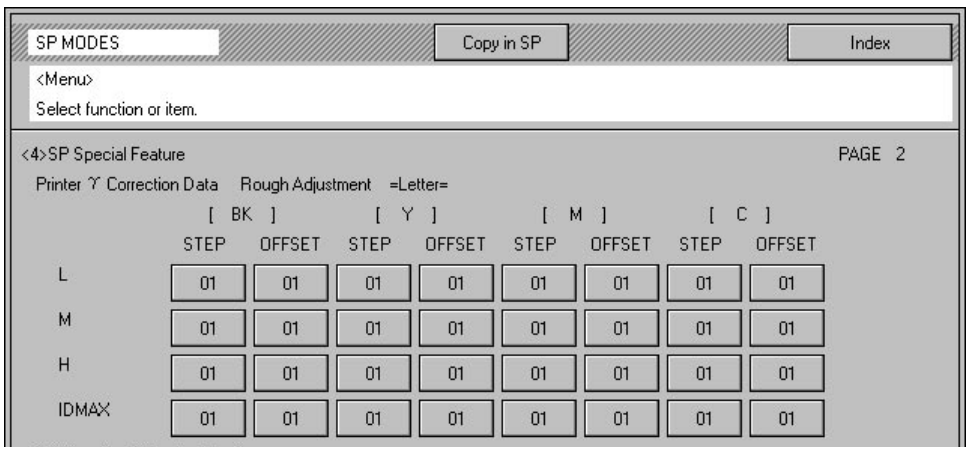
(Also, from the SP mode, the previous settings can be recalled by touching the **Recall from Temporary Memory** [B] key.)

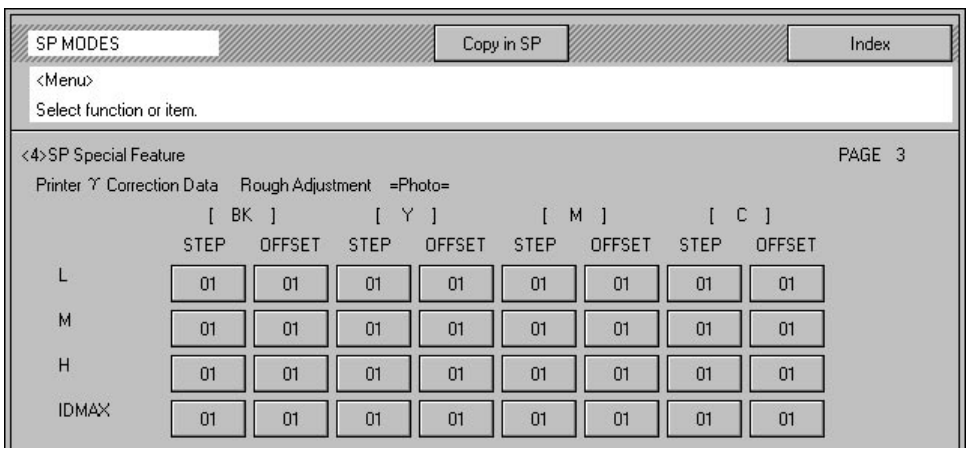


[B] (SP Mode No. 4 Special Feature, Page 2)

1.1.3 To change the value of the γ correction data

1. Enter the SP mode and touch **No. 4 SP Special Feature**.
2. Go to page 2 (letter mode) or page 3 (photo mode) and change the OFFSET values. (Refer to the tables on the next page.)


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<4>SP Special Feature
PAGE 2
Printer γ Correction Data Rough Adjustment =Letter=
[BK] [Y] [M] [C]
STEP OFFSET STEP OFFSET STEP OFFSET STEP OFFSET
L 01 01 01 01 01 01 01 01
M 01 01 01 01 01 01 01 01
H 01 01 01 01 01 01 01 01
IDMAX 01 01 01 01 01 01 01 01

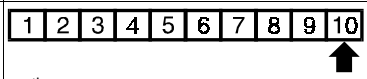
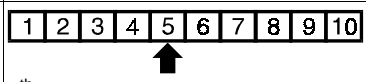
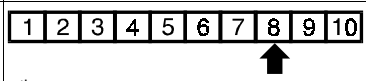
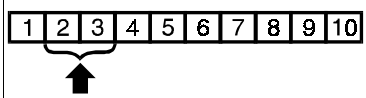

SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<4>SP Special Feature
PAGE 3
Printer γ Correction Data Rough Adjustment =Photo=
[BK] [Y] [M] [C]
STEP OFFSET STEP OFFSET STEP OFFSET STEP OFFSET
L 01 01 01 01 01 01 01 01
M 01 01 01 01 01 01 01 01
H 01 01 01 01 01 01 01 01
IDMAX 01 01 01 01 01 01 01 01

NOTE: Always adjust the color balance using the "OFFSET" keys only. Do not change the values in the "STEP" column.

3. To finish the operation, touch the **Index** [B] key to return to the SP mode menu. Touch the **Exit** key to exit the SP mode.

- To back up the current settings, refer to the information in chapter 4, "Service Tables".

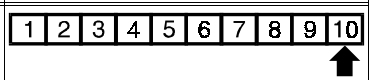
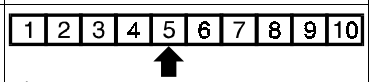
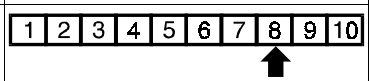
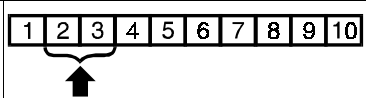
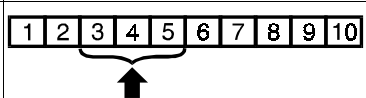
— STANDARD COPY QUALITY IN LETTER MODE —

Step No.	Key to Adjust	Level to Refer to on the C-4 Chart	Adjustment Standard
1	ID MAX for each color	 10th level of the color scale	Adjust the ID of the 10th level to the same value as the C-4 test chart.
2	MIDDLE ID for each color	 5th level of the color scale	Adjust the ID of the 5th level to the same value as the C-4 test chart.
3	HIGH ID for each color	 8th level of the color scale	Adjust the ID of the 8th level to the same value as the C-4 test chart.
4	LOW ID for each color	 2nd and 3rd level of the color scale	Adjust the ID so that the 2nd level is not visible, and the 3rd level is the same value as the C-4 test chart.

NOTE: If the customer tends to use the "3 COLOR" mode in the user tools frequently, perform the following color balance adjustment.

1) Enter the User Tools.
2) Open Sensitivity Adjustment "Color Mode" and select "3C".
3) Exit the User Tools and take a full color copy in the letter mode.
4) Adjust the black scale level 3 to 5 (LOW ID) by combining cyan, magenta, and yellow ID's to an acceptable shade of gray.

— STANDARD COPY QUALITY IN PHOTO MODE —

Step No.	Key to Adjust	Level to Refer to on the C-4 Chart	Adjustment Standard
1	ID MAX for each color	 10th level of the color scale	Adjust the ID of the 10th level to the same value as the C-4 test chart.
2	MIDDLE ID for each color	 5th level of the color scale	Adjust the ID of the 5th level to the same value as the C-4 test chart.
3	HIGH ID for each color	 8th level of the color scale	Adjust the ID of the 8th level to the same value as the C-4 test chart.
4	LOW ID for each color	 2nd and 3rd level of the color scale	Adjust the ID so that the 2nd level is slightly (just) visible and the 3rd level is the same as the C-4 test chart.
5	Low ID of Y, M, C	 3rd, 4th, and 5th level of the **black** scale	The levels should be an acceptable shade of grey.

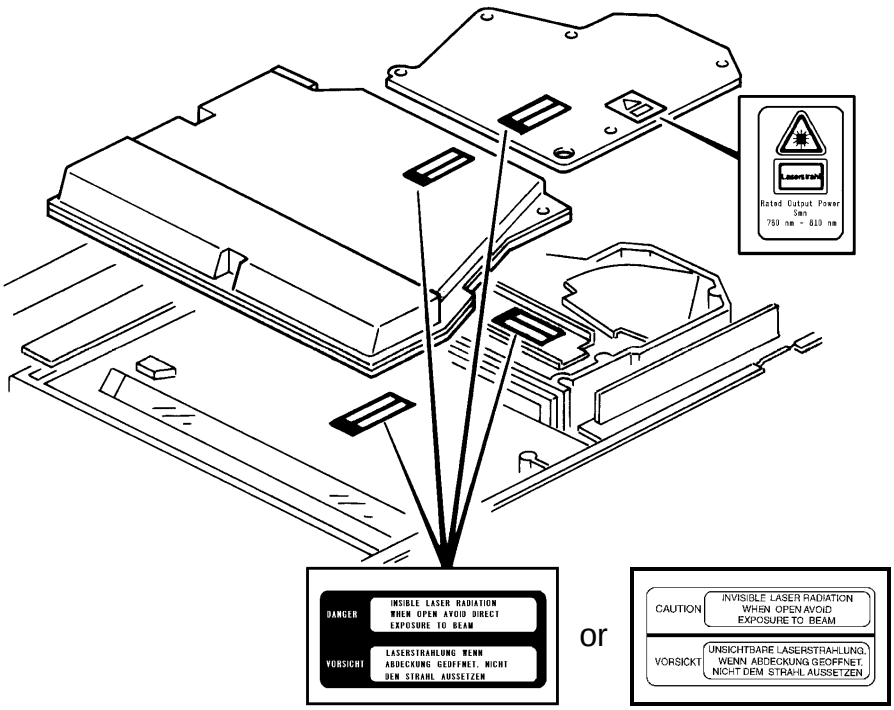
2. LASER UNIT

2.1 WARNING

⚠ DANGER

Turn off the main switch and unplug the machine before attempting any of the procedures in this section. Laser beams can seriously damage your eyes.

– CAUTION DECAL –

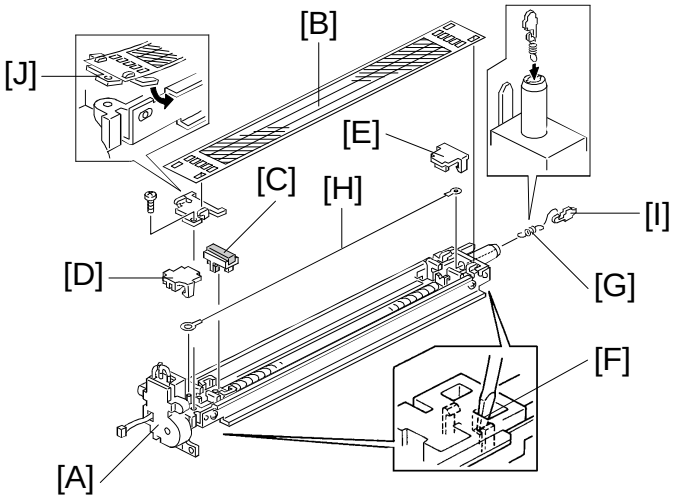


A172R543.img

Five caution decals are located in the laser unit, as shown.

3. DRUM UNIT

3.1 CHARGE CORONA WIRE AND WIRE CLEANER PAD REPLACEMENT



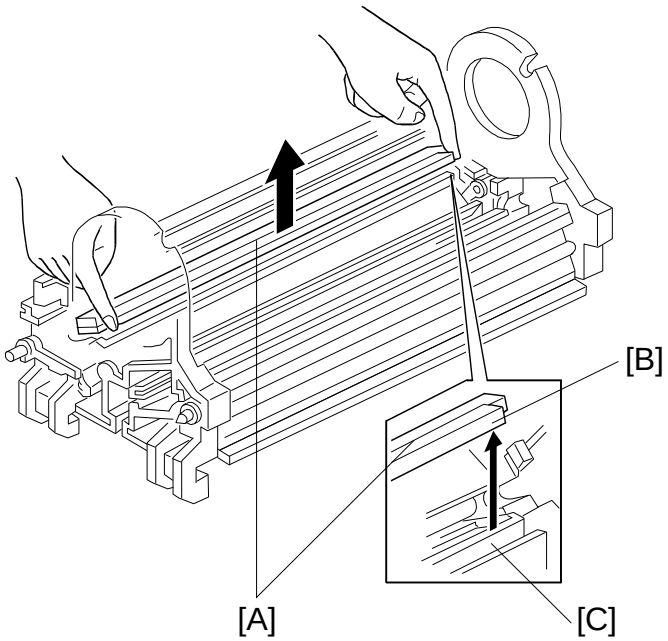
A172R506.wmf

1. Take out the charge corona unit [A]. (See A109 Drum Unit Removal.)
2. Remove the grid plate [B] (1 screw).
3. Remove the wire cleaner [C].
4. Remove the front end block cover [D] and the rear end block cover [E] by using a small screwdriver at the rear of the unit as in [F].
5. Remove the terminal spring [G] and then remove the charge corona wire [H].

   NOTE: When reinstalling, do the following.

   1) Hook the spring [G] to the bias terminal [I].
   2) Install the two parts down through the hole as shown.
   3) Hook the corona wire [H] to the spring.
   4) Hook the other end of the wire [H].
   5) Snap in both end block covers [D], [E].
   6) Set the wire cleaner [C] so that the corona wire runs between the cleaner pads.
   7) Install the grid plate [B] using the holder bracket [J], making sure that the hooks lie under the casing as shown (1 screw).
6. If the grid plate, casing, or the corona wire were replaced or cleaned, perform the "Process Control Self Check" (SP Test Mode P-4).

3.2 DRUM LUBRICANT BAR REPLACEMENT

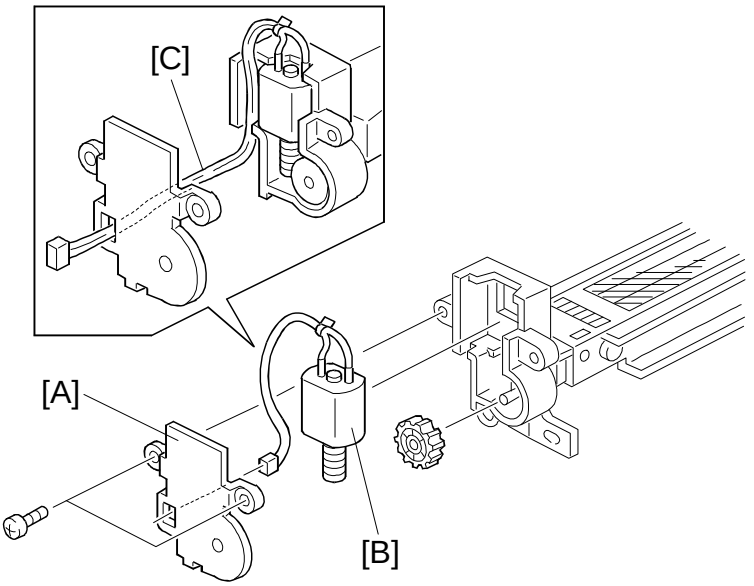


A172R508.wmf

1. Remove the cleaning brush. (See A109 Cleaning Brush Replacement.)
2. Remove the drum lubricant bar [A] as shown.

   NOTE: When reinstalling make sure that the lubricant plate [B] lies over the unit frame [C] as shown.

3.3 WIRE CLEANER MOTOR REPLACEMENT



A172R509.wmf

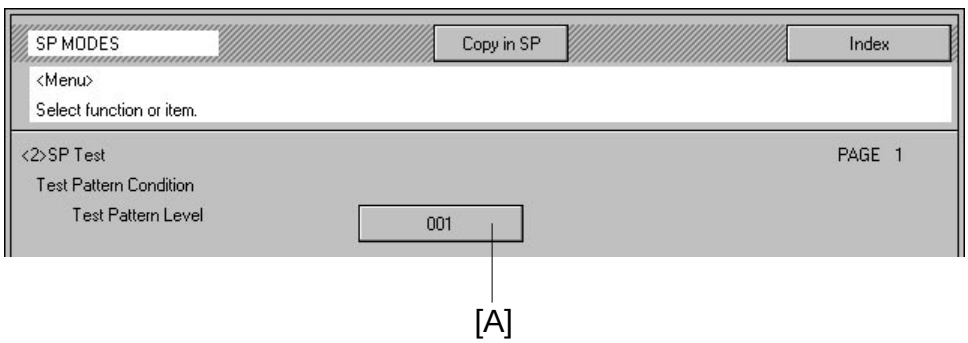
1. Remove the toner tank.
2. Remove the cleaner motor cover [A] (2 screws) and remove the wire cleaner motor [B].

   NOTE: When reinstalling, route the harness [C] as shown.

3.4 INSTALLING A NEW DRUM

NOTE:
- The installation procedure for a new drum is the same as for the base copier (A109) except the following steps which come after turning on the main switch.
- The steps from 3 to 12 are to apply lubricant to the new drum surface. These steps can all be replaced by just making 10 copies of the C-4 Test Chart on A3 (11"X17") paper.
- If the developer is replaced together with the OPC drum, steps 3 to 12 are unnecessary because lubricant is applied to the drum surface during the developer initialization.

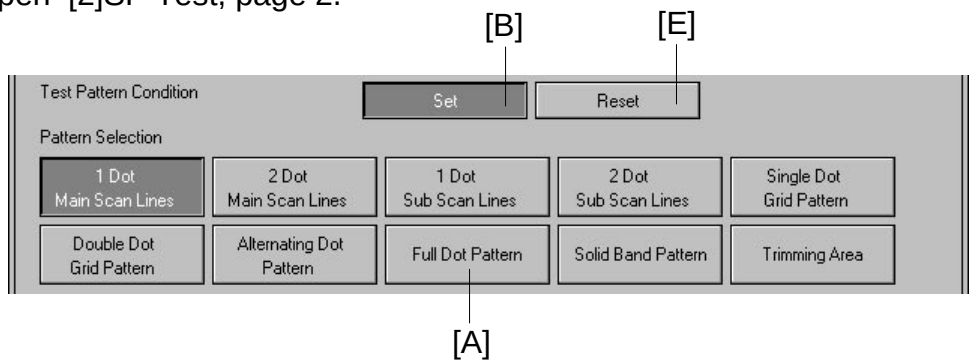
1. Replace the OPC drum with a new one and reassemble the copier.
2. Turn on the main switch.
3. Place a few sheets of A3 (11"X17") white paper and close the platen cover (DJF).
4. Enter the SP mode and open [2]SP Test, page 1.



5. Set the **Test Pattern Level** [A] to "*30*".

NOTE: If the test pattern level is too high, a lot of toner will be consumed and toner scattering will occur inside the machine.

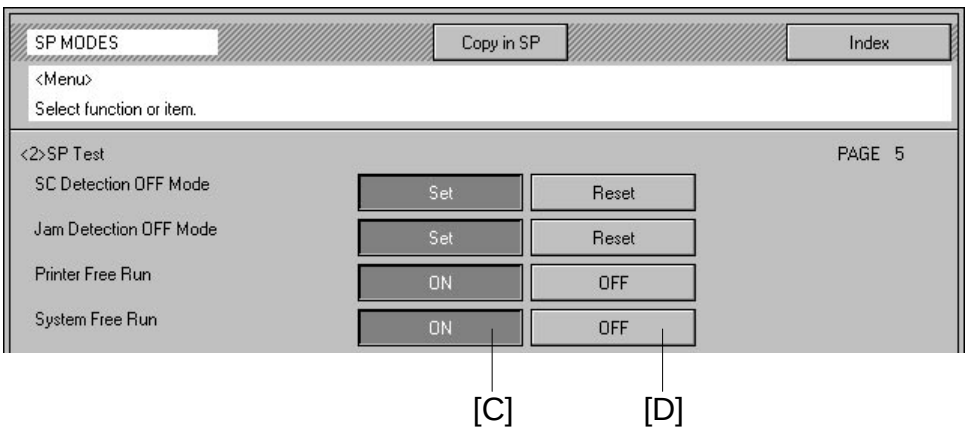
6. Open [2]SP Test, page 2.



7. Select "*Full Dot Pattern*" [A] in **Pattern selection** and select "*Set*" [B] in **Test Pattern Condition**.

8. Touch the "Copy in SP" key and select "*Black*" copy mode.

9. Touch the "SP MODES" key and open [2]SP Test, page 5.



10. Start the **System Free Run** by touching "*ON*" [C] and wait for 6 to 7 minutes.

11. Stop the System Free Run by touching "*OFF*" [D].

12. Open [2]SP Test, page 2 and select "*Reset*" [E] for **Test Pattern Condition**.

13. **Wait for 5 minutes** and open [2]SP Test, page 4.

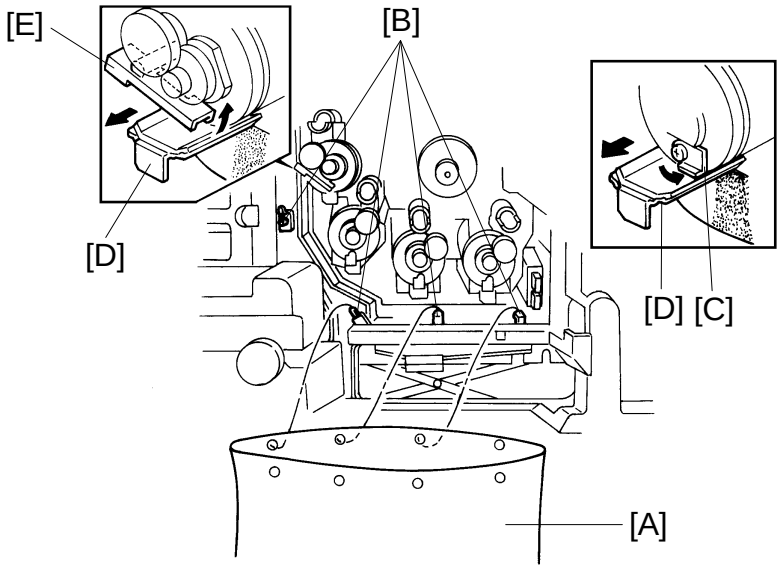
14. Perform **Process Control Selfcheck** by touching "*Start*".

15. Check the result of Process Control Selfcheck referring to the installation procedure and exit the SP mode.

16. Perform Auto Color Calibration.

4. DEVELOPMENT SECTION

4.1 DEVELOPER COLLECTION

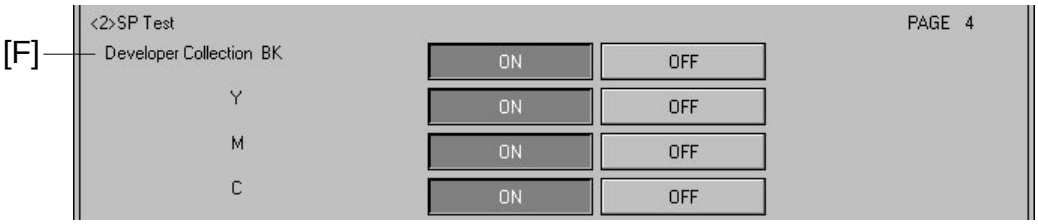


A172R510.img

NOTE:
- The machine must be at the "READY" condition to perform the developer collection.
- To maintain good color copy quality, developer replacement should be performed for all colors at the same time so that all the developers have similar characteristics.
- For more detailed information concerning access to SP modes, refer to section 4 (Service Program Mode Operation).
- Before performing this procedure, place old newspapers on the floor to keep the customer site clean.
- Collect 2 developers per bag (black and cyan, magenta and yellow).

1. Open the front door and remove the toner tank unit (2 screws).
2. Place the developer collection bag [A] on the hooks [B] on the copier frame.
3. Turn on the front safety switch using the accessory switch actuator. Wait until the machine is at the 'READY' condition.
4. Swing over the stopper bracket [C] then pull the collection cover [D] of the desired development unit. Developer will fall into the bag.

   NOTE: For black developer, shift the lever [E] instead of the stopper bracket [C].

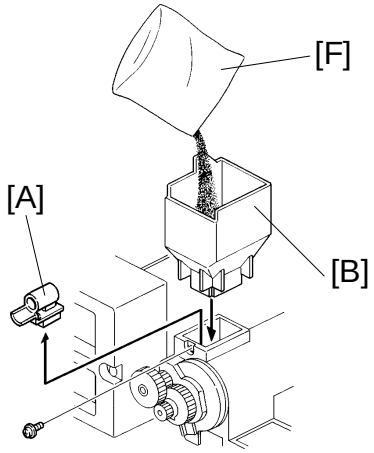


5. Enter SP mode and open SP Test Mode P-4 (Developer Collection) [F].
6. Press "ON" for the desired developer to be collected.

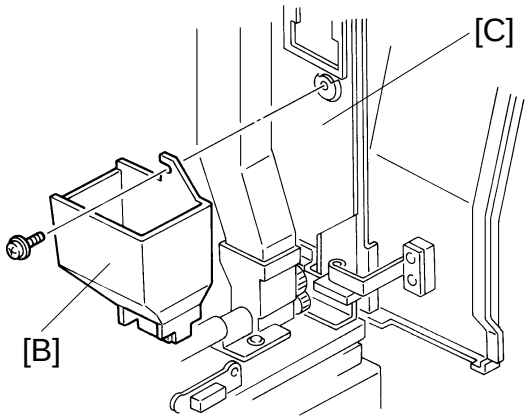
   NOTE: Support the developer bag [A] while performing this procedure.
7. Wait until the developer is collected completely (about 2 to 3 minutes) and press "OFF".
8. Perform the same procedure for the other developers.
9. Reinstall the collection cover [D].

   NOTE: For black developer, make sure to shift back the lever.

4.2 DEVELOPER INSTALLATION



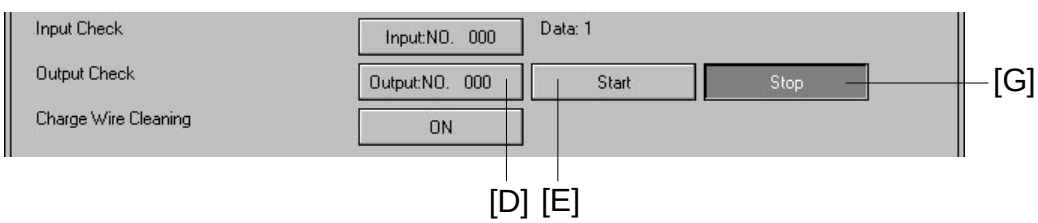
A172R511.img



A172R512.img

1. From the Developer Collection procedure step number 9 condition, remove all the toner supply receptacles [A] (1 screw).
2. Remove the right inner cover. (See A109 Right Inner Cover Removal.)
3. Remove the developer supply funnel [B] from the bracket [C] and clean the inner surface.
4. Set the developer supply funnel on the black development section as shown.
5. Open SP Test Mode P-4 (Output Check).
6. Touch the key [D], to enter the output mode.
7. Enter "68" with the number keys, then touch the key [D] again to select test mode #68 "black development drive motor ON".
8. Touch the Start key [E].
9. Shake a pack of black developer [F] 20 times then pour it in.
10. 1 minute after pouring the developer, touch the stop key [G].

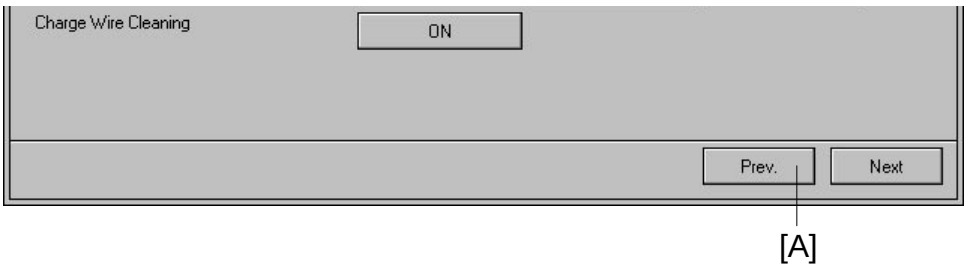
NOTE: Do not touch the stop key within 1 minute, otherwise, the developer will not be distributed evenly in the development unit.



Replacement Adjustment

11. Remove the developer supply funnel, then install the toner supply receptacle.
12. Install the cyan, magenta and yellow developer in the same manner as black developer installation (step #3 to #11).

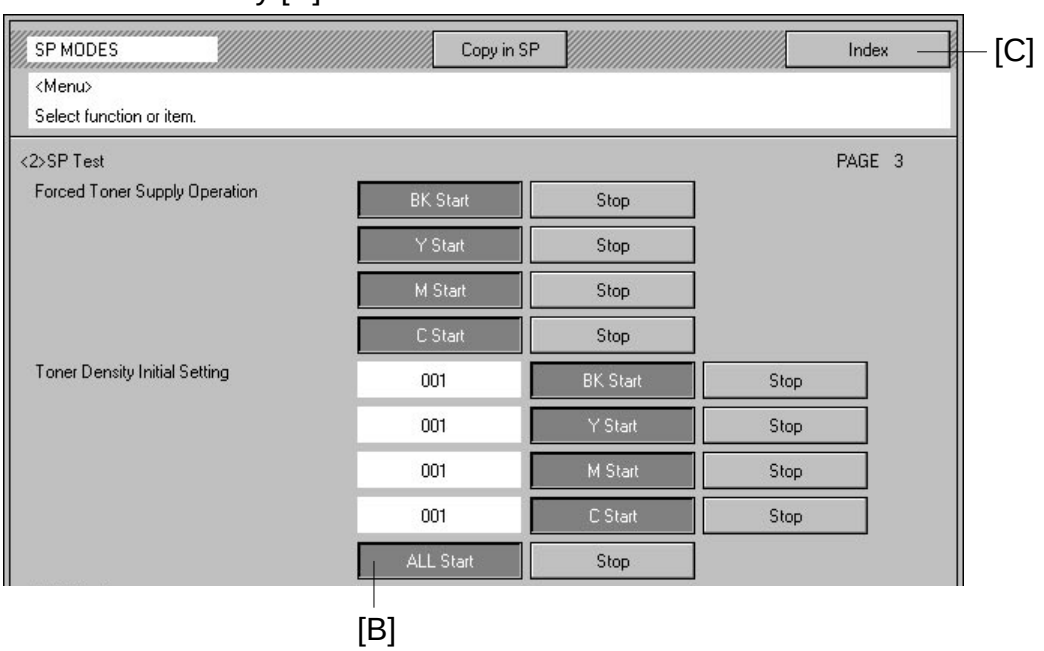
    NOTE: To select the "color development drive motor ON" mode, enter "69" for color instead of 68 for black (refer to step #7).
13. Return the developer supply funnel to the original position.
14. Touch the Previous key [A] to open page 3.



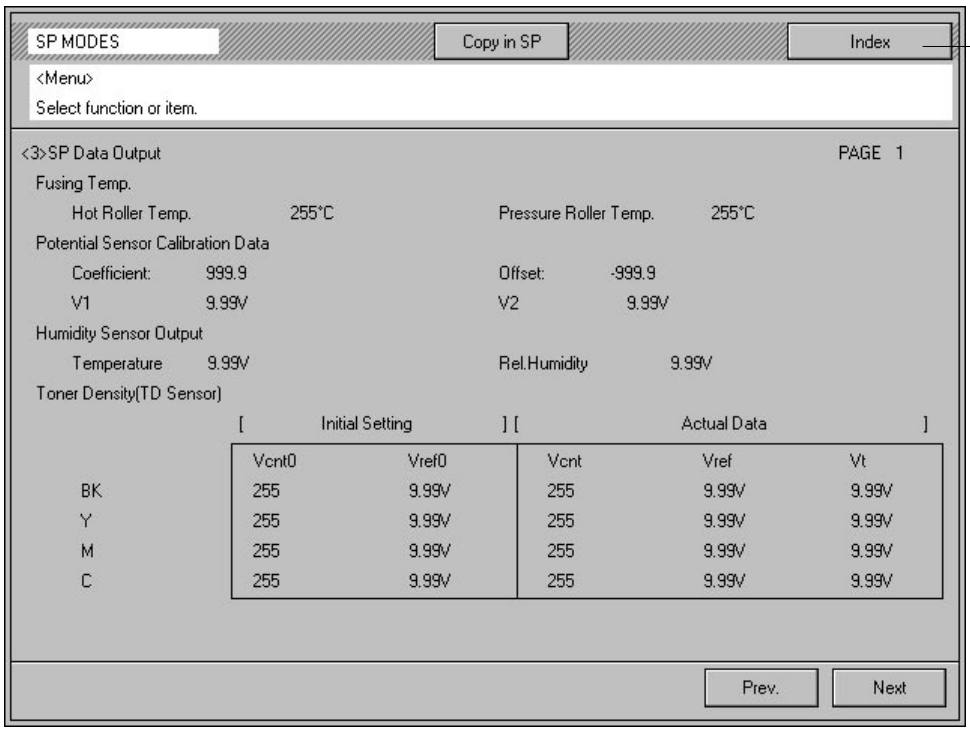
15. Perform the developer initial setting as follows.
    1) Confirm that the main charge corona, PCC, ID sensor boards are installed correctly (1 screw each).
    2) Confirm that the toner tank is not installed.

    NOTE: If the toner tank is installed, toner is supplied during the developer initial setting and the machine cannot figure out the proper toner concentration of the new developer.

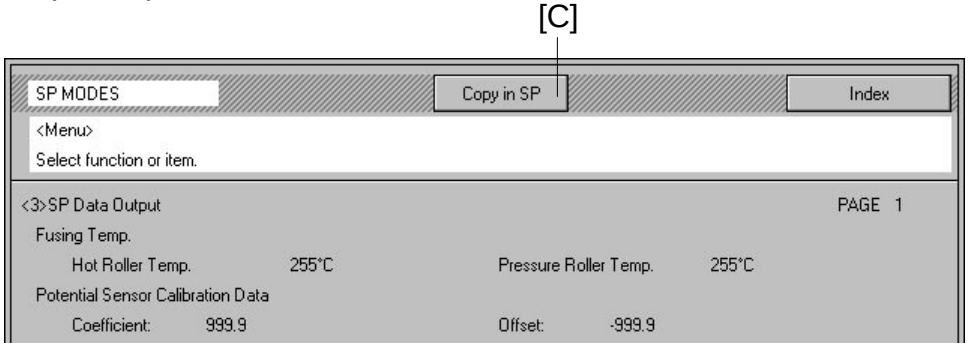
    3) Touch the All Start key [B] to start the developer initial setting. After the adjustment is completed, the machine stops automatically.
16. Touch the Index key [C].



17. Open SP Data Output P-1 (Toner Density).

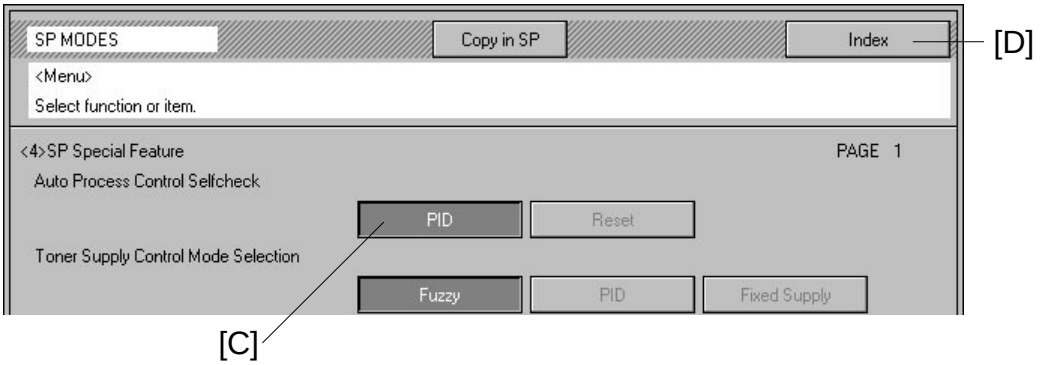


18. Check whether V_T has the same values as Vref for all colors (Bk, Y, M, C). If not, touch the Index key [B] then return to the test mode page 3 to perform the developer initial setting (step 15) again.
19. Put the toner tank [A] on the Accuride rails (2 screws).
20. Close the front doors and install the copy tray.
21. Place a C-4 test chart on the exposure glass.
22. Touch the Copy In SP key [C] and make 20 full color copies using A3 or 11" x 17" size paper. (40 full color copies using A4 or 11" x 8 1/2" is also acceptable.)



23. **Wait 5 minutes** to ensure that no residual voltage remains on the drum.

    NOTE: The process control self check (step 28) must be performed when there is no residual voltage on the drum.

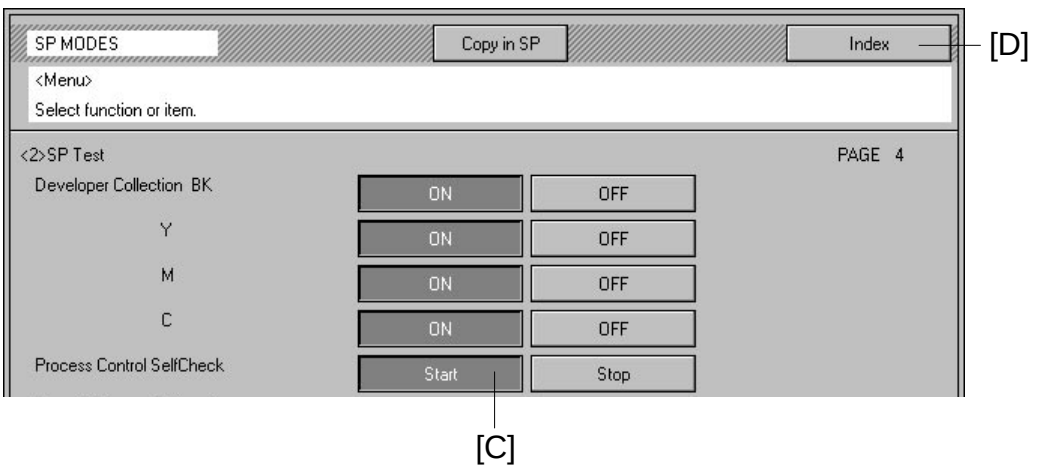


24. Open SP Special Feature P-1.

25. Confirm that the PID key [C] is selected for the Process Control Mode Selection. If not, touch the PID key [C].

26. Touch the Index key [D].

27. Open SP Test Mode P-4 (Process Control Self Check).



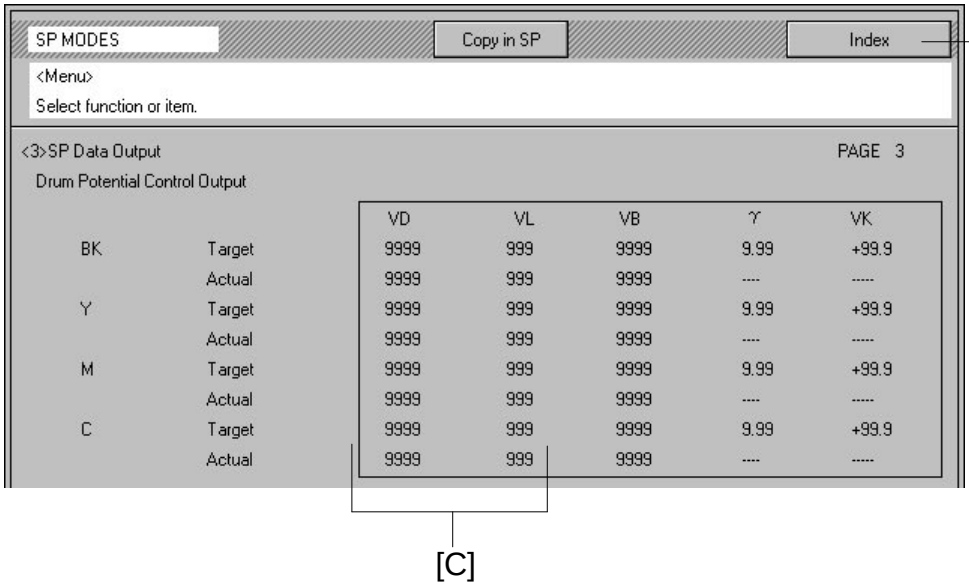
28. Touch the Process Control Self Check Start key [C]. After the self check is completed, the machine stops automatically.

⚠ CAUTION

While process control is taking place, do not touch the knob, drum stay, or drum shaft. These parts and the fly wheel carry a high voltage during process control.

29. Touch the Index key [D].

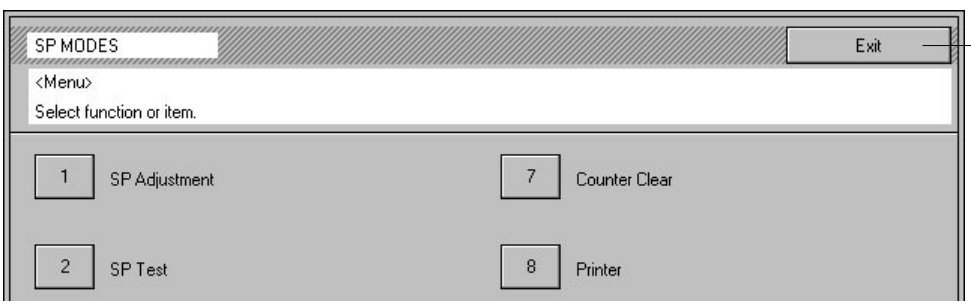
30. Open SP Data Output P-3 (Drum Potential Control Output).


SP MODES
Copy in SP
Index
[D]
<Menu>
Select function or item.
<3>SP Data Output
PAGE 3
Drum Potential Control Output
VD VL VB γ VK
BK Target 9999 999 9999 9.99 +99.9
Actual 9999 999 9999 ---- -----
Y Target 9999 999 9999 9.99 +99.9
Actual 9999 999 9999 ---- -----
M Target 9999 999 9999 9.99 +99.9
Actual 9999 999 9999 ---- -----
C Target 9999 999 9999 9.99 +99.9
Actual 9999 999 9999 ---- -----
[C]

31. Check V_D and V_L [C] for each color. If the difference between 'Target' and 'Actual' for any color exceeds 5, wait 5 minutes and go back to step 28 and perform the process control self check again.

32. Touch the Index key [D].

33. Touch the Exit key [A].



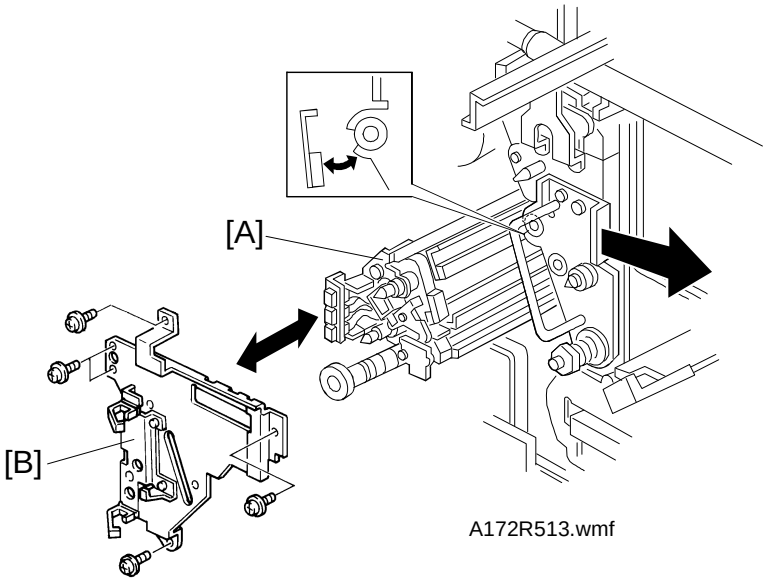
34. Turn off the main switch and place the accessory switch actuator in its original position.

35. Reinstall all parts.

36. Check the copy image and adjust the color blance if necessary.

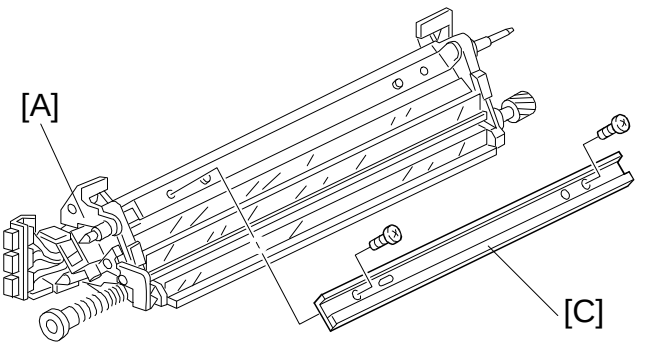
5. TRANSFER BELT CLEANING UNIT

5.1 BELT LUBRICANT BAR REPLACEMENT



A172R513.wmf

A172R514.img

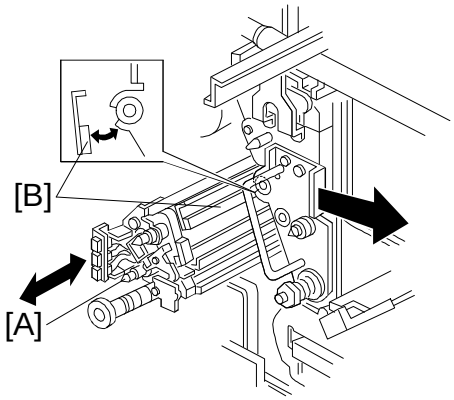


A172R515.wmf

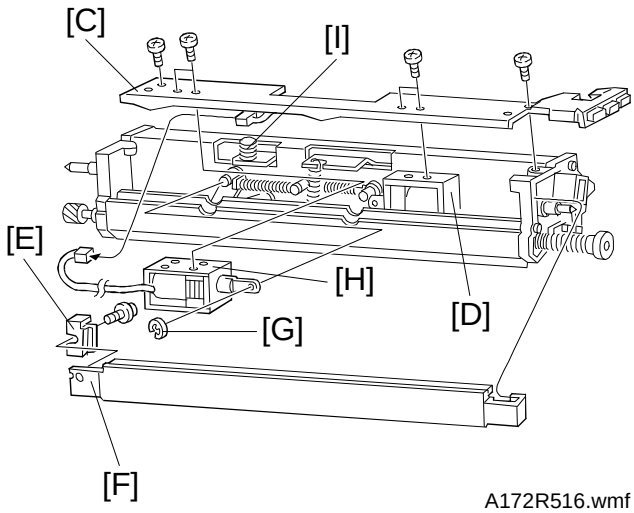
1. Remove the following parts and slide out the transfer belt cleaning unit [A]. (Refer to Section 3, Installation.)
   - Toner tank
   - Right inner cover
   - Yellow toner supply receptacle
   - Transfer belt stay [B].
2. Remove the belt lubricant bar [C] (2 screws).

   NOTE: To prevent the belt lubricant bar [C] from being scratched, pull the handle of the transfer belt unit slightly to the right while you pull the transfer belt cleaning unit in.

5.2 BELT LUBRICANT BAR SOLENOID REPLACEMENT



A172R513.wmf



A172R516.wmf

1. Remove the cleaning unit [A] and remove the lubricant bar [B]. (Refer to the Transfer Belt Lubricant Bar Replacement section.)

   NOTE: To prevent the belt lubricant bar [B] from being scratched, pull the handle of the transfer belt unit slightly to the right while you pull the transfer belt cleaning unit out.

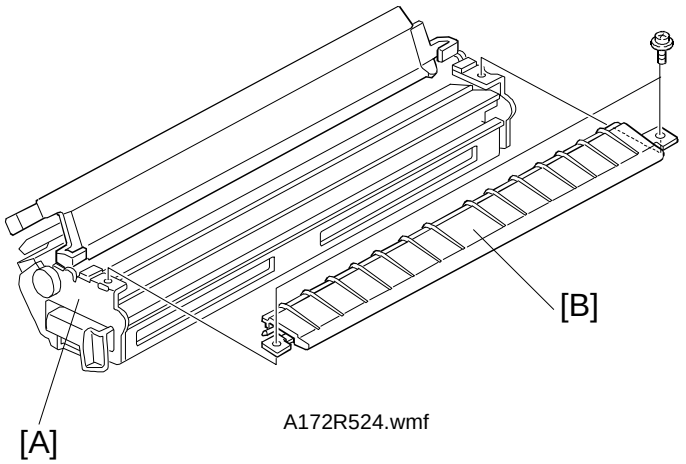
2. Remove the blade solenoid bracket [C] (2 screws).
3. Remove the blade solenoid [D] (2 screws).
4. Remove the base plate securing bracket [E] (1 screw) and remove the base plate [F].
5. Disconnect the lubricant bar solenoid connector.
6. Remove the lubricant bar solenoid plunger E-ring [G].
7. Remove the lubricant bar solenoid [H] (2 screws).

   NOTE: When reinstalling, make sure of the following:

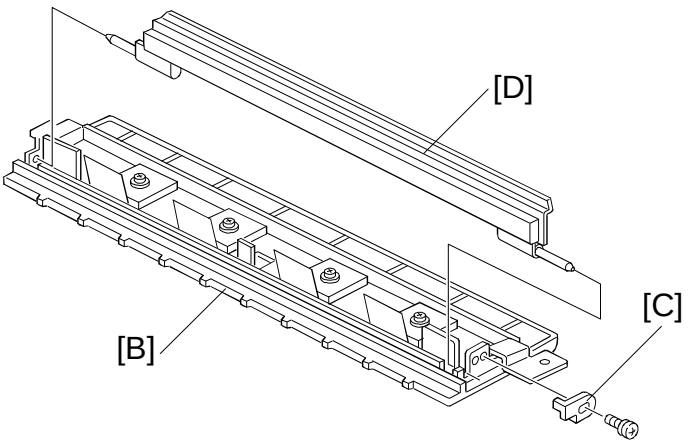
   - Set the arm hole of the solenoid plunger on the pin first, then screw down the solenoid bracket.
   - The belt lubricant bar solenoid's plunger must be in (the position for no contact with the transfer belt).
   - The spring [I] must fit the projection on the blade solenoid bracket.

6. TRANSFER ROLLER UNIT

6.1 ROLLER LUBRICANT BAR REPLACEMENT

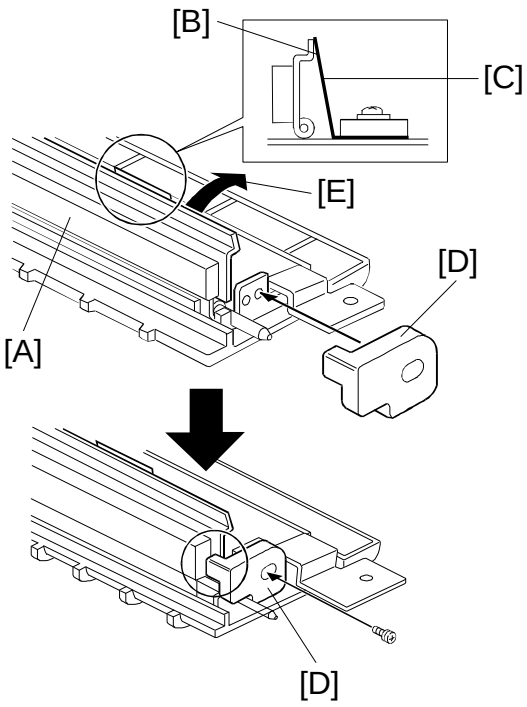


A172R524.wmf

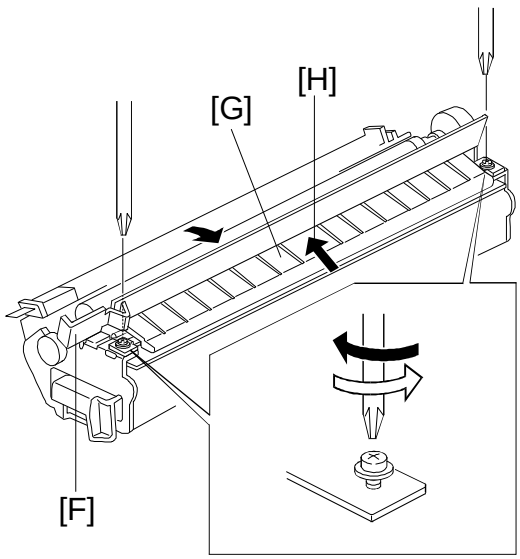


A172R525.wmf

1. Remove the transfer roller unit [A]. (See A109 Transfer Roller Unit Removal).
2. Remove the transfer roller guide [B] (2 screws).
3. Remove the hook [C] (1 screw) and replace the roller lubricant bar [D].



A172R526.wmf



A172R527.wmf

NOTE: When installing, do the following.

- Handle the lubricant bar [A] gently. They break or crack easily.
- When resting the lubricant bar bracket [B] on the unit, make sure that the spring plate [C] is positioned as shown. (The spring plate should not be under the lubricant bar bracket.)
- To install the hook [D], press the lubricant bar bracket in the direction [E] as shown above.
- When reinstalling the lower guide [G], flip the upper guide [F] to the normal position. Do not push it in the direction indicated by the arrow [H]. Let the guide lie naturally in its position, then tighten the 2 screws.

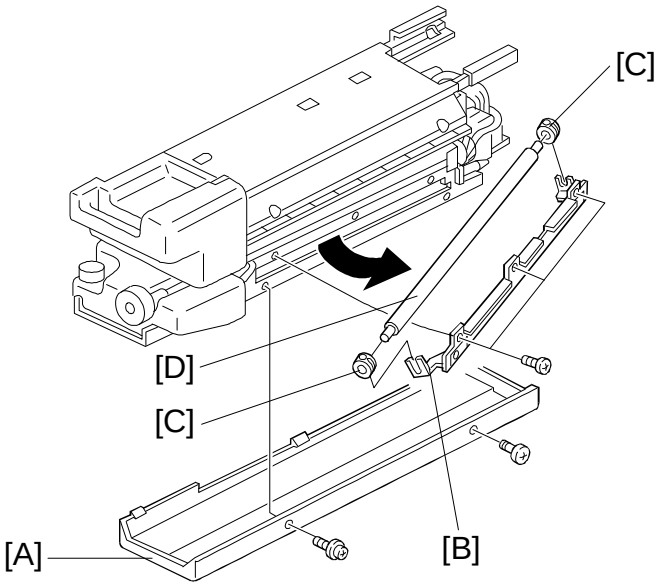
7. FUSING UNIT

7.1 PRESSURE ROLLER CLEANING ROLLER REPLACEMENT

⚠ CAUTION

1. Be careful when handling the fusing unit. It is hot.

2. Take care not to spill silicone oil on the floor. If silicone oil spills on the floor, immediately clean it with a silicone oil remover. Silicone oil is very slippery and can cause someone to fall.

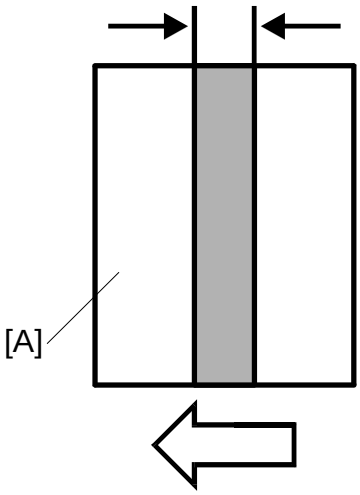


A172R517.wmf

1. Remove the fusing unit from the machine. (See A109 Fusing Unit Removal.)
2. Remove the fusing lower cover [A] (2 screws).
3. Remove the cleaning roller support bracket [B] (3 screws).
4. Remove the bearings [C] and remove the pressure roller cleaning roller [D].

7.2 FUSING PRESSURE (NIP BAND WIDTH) CONFIRMATION

NOTE: Normally this adjustment is not needed in the field. (The standard factory settings are shown in the table below.)
Perform the following procedures only when the problem is thought to be caused by an incorrect nip band width.



A172R518.wmf

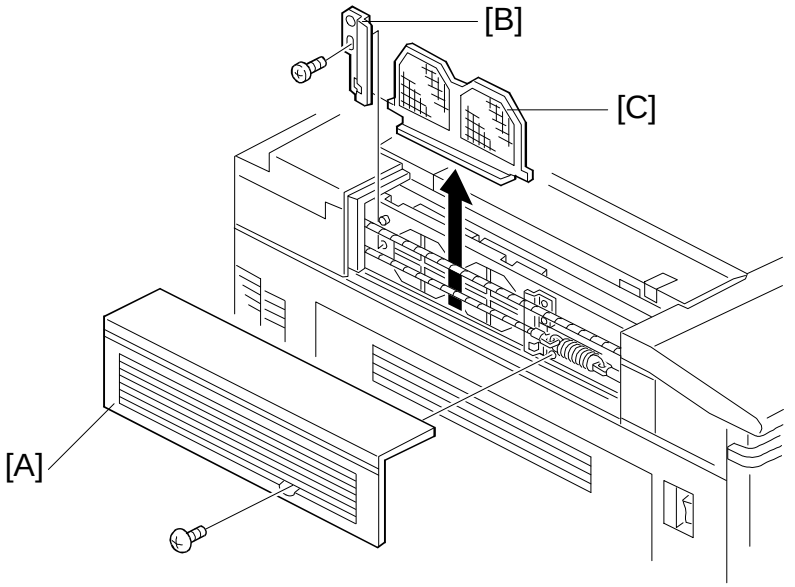
LOCATION	STANDARD
Center	9.0 ± 0.5 mm (Confirmation reference)
Both Edges	9.5 ± 0.5 mm

1. After warming up, turn off the main switch and pull out the fusing unit.
2. Pass an OHP sheet sideways [A] through the rollers to about the center position.
3. Wait 30 seconds, then remove the OHP sheet.
4. Measure the width of the the center area and both edges of the nip band.
5. If out of standard, adjust the pressure by using the spring screws located at both edges of the fusing unit. (Turning the screws clockwise will increase the nip band width.)

   Confirm that the nip band width is within specification.

8. OTHERS

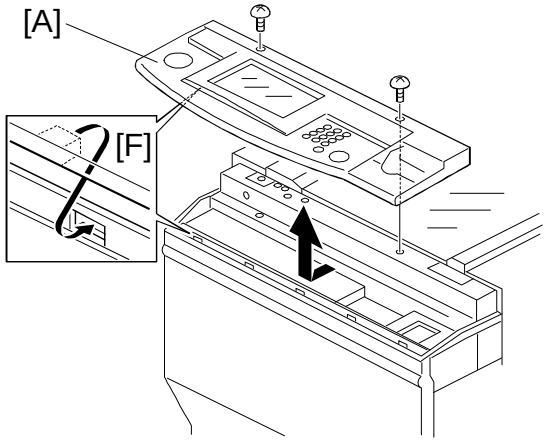
8.1 OPTICS COOLING FAN FILTER REPLACEMENT



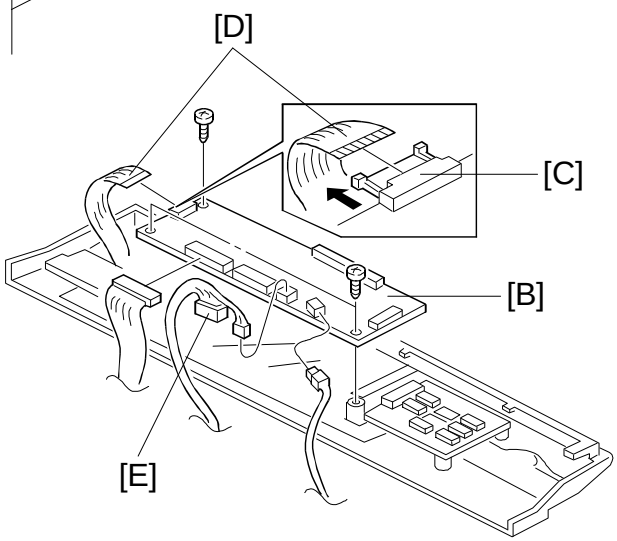
A172R519.wmf

1. Remove the top left cover [A] (1 screw).
2. Remove the filter securing bracket [B] (1 screw).
3. Remove the optics cooling fan filter [C].

8.2 OPERATION PANEL CONTROL BOARD REPLACEMENT



A172R520.wmf



A172R521.wmf

1. Remove the operation panel [A] (2 screws).
2. Disconnect the operation panel control board [B] connectors. (A172: 5 connectors, A199: 4 connectors).

   NOTE:
   - Pull out the connector catch [C] first, when disconnecting the flexible connector [D].
     Also when reinstalling, slide in the flexible connector when the connector catch is pulled out.
   - The connector [E] is for A172 only.

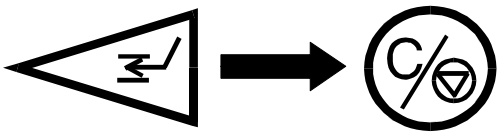
3. Remove the operation panel control board [B] (2 screws).

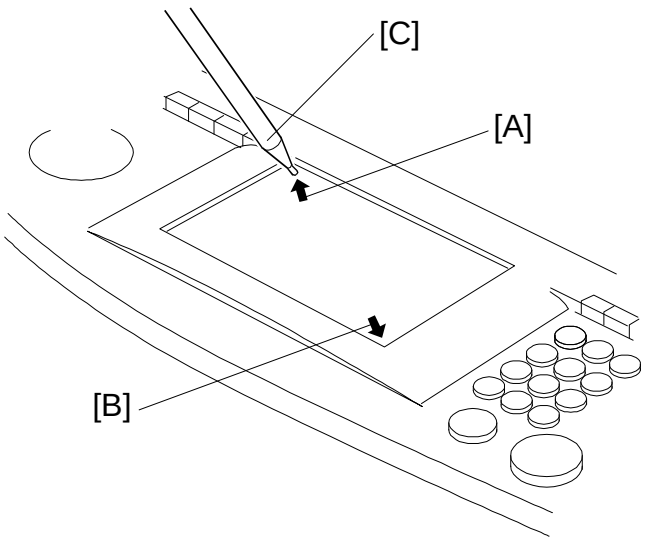
   NOTE: When reinstalling the operation panel, make sure that the panel is properly hooked in [F].

8.3 POINT ACCURACY ADJUSTMENT

When the touch panel sensing mechanism is not working properly, adjust it as follows:

1. Press the Interrupt key.
2. Hold down the Clear/Stop key for more than 3 seconds.





A172R522.wmf

3. The graphic sensing adjustment screen will appear. Touch the upper left corner [A] then the lower right corner [B] of the panel using the editor pen [C].
4. Touch a few spots on the LCD touch panel, and confirm that the marker on the screen appears at exactly the same location as the pointed tip. If it does not, press the Clear/Stop key and repeat this procedure.
5. Press the Enter key to save the setting.
6. Press the Interrupt key to cancel the interrupt mode.

9. A172/A199 Fiery XJ System Printer γ Adjustment Procedure

9.1 Procedure

After you install the Interface Kit Type-C in the A172/A199 copiers, perform the following printer γ adjustment procedure.

NOTE: 1 The printer gamma must be adjusted for both Fiery print mode settings (contone and halftone).

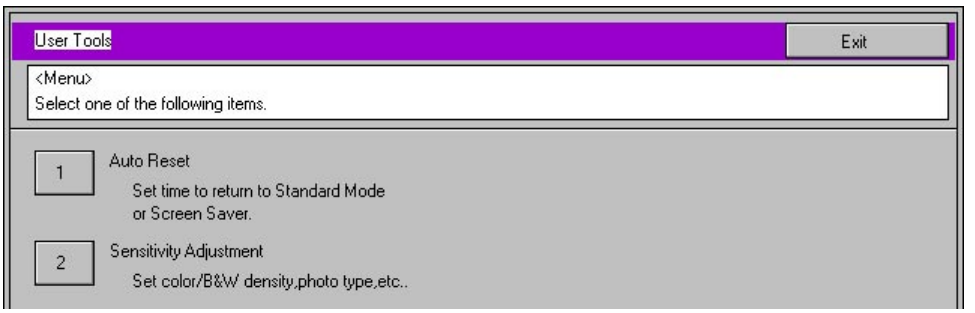
NOTE: 2 The ACC procedure automatically adjusts both printer gamma settings (contone and halftone) at once. These printers modes can not be adjusted independently using ACC.

1. Connect the copier to the Fiery XJ with the cable provided.
2. Turn on the copier. When the copier is in standing by mode, turn on the Fiery XJ.

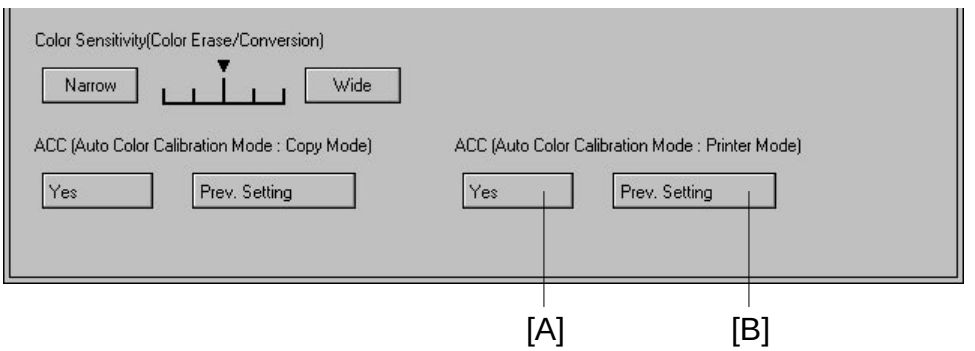
NOTE: Make sure that the copier is not in use and that the Fiery XJ screen displays "idle".

3. Print a Test Page to check the color balance and image density.
   1) At the idle screen, press the menu button of the Fiery XJ LCD once.
   2) Press the line selection button (to the right of "Print XJ Pages").
   3) Select Test Page from the submenu to print the Test Page (default: contone).
4. Compare the color scales on the Test Page just printed with the color scales on the reference Fiery XJ Test Page.
   Check that the various grades along the color scales are similar in density to those on the reference Test Page.
5. If the color scales on the Test Page are not acceptable, perform the Auto Color Calibration (ACC: Steps from 6 to 14).

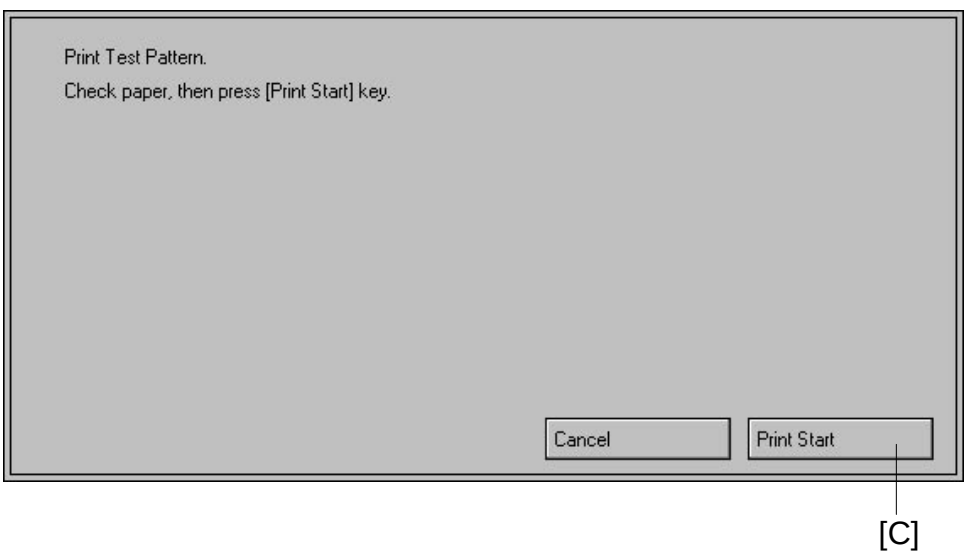
6. Press the **User Tool** key on the operation panel.
7. Select **No. 2: Sensitivity Adjustment**.



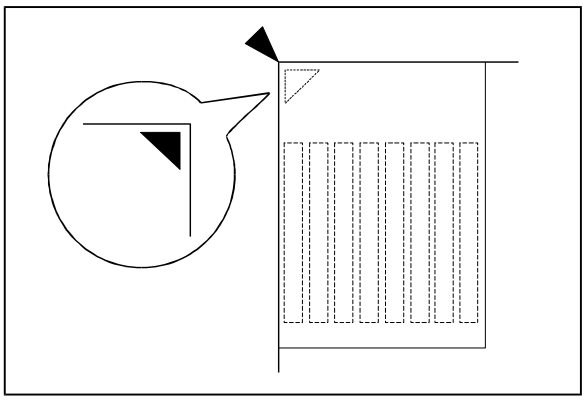
8. Press the **Yes** key [A]. If you want to recall the previous settings, press the **Prev. Setting** key [B].



9. Press the **Print Start** key [C].
   A test pattern will be printed.
   It will be printed on A4 or 8 1/2" x 11" sideways. If these sizes are not available, it will be printed on a larger size.

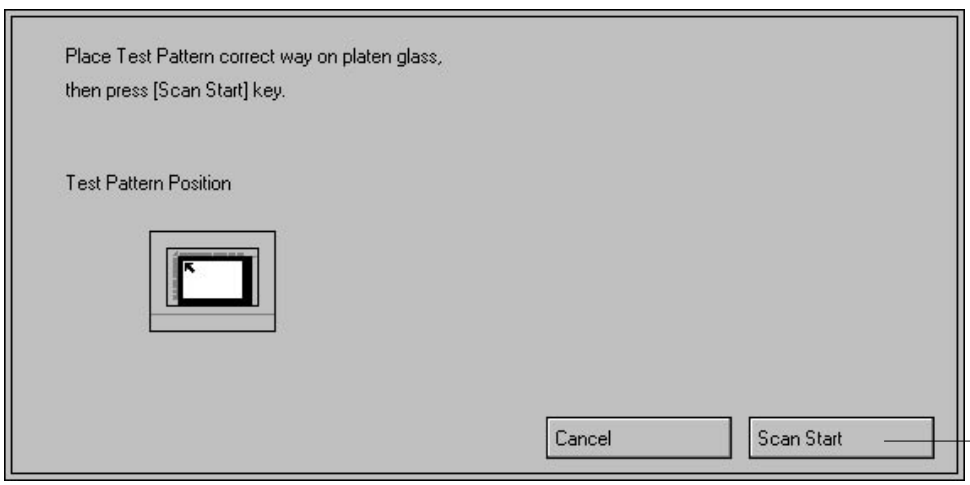


10. Place the test pattern on the exposure glass as shown in the illustration. If the copier is equipped with an optional dual job feeder, put the test pattern face-up on top of several sheets of white paper of the same size. Then place all the sheets face-down on the exposure glass.



A172R523.wmf

11. Press the **Scan Start** [D] key.
The γ correction data will be automatically adjusted.



12. Print out the test page.

13. Compare the printouts made before the ACC (Auto Color Calibration) and after the ACC.

14. If you want to recall the previous settings, perform steps 6 ~ 8 and in step 3 press the **Prev. Setting** key [B] instead of the **Yes** key.

15. If the output quality is still not satisfactory, change the value of the γ correction data for each mode as follows (contone/halftone).

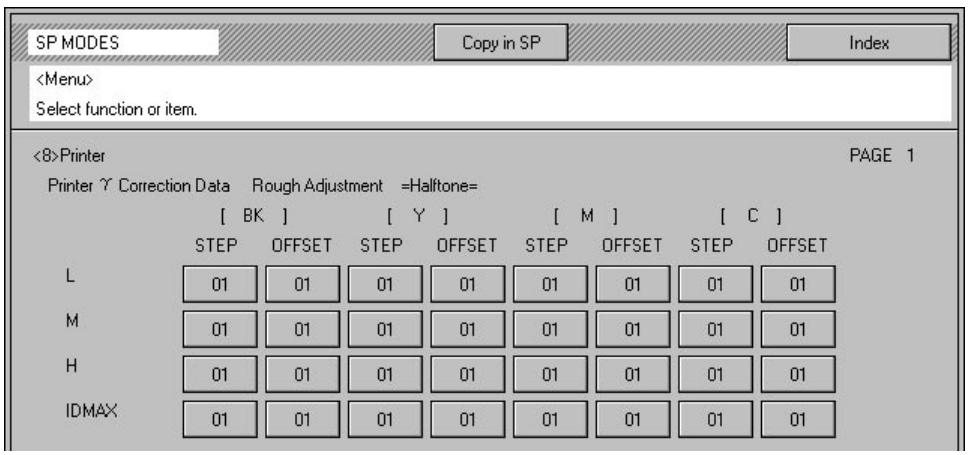
9.2 To change the value of the γ correction data.

1. Enter the SP mode and touch **No.8 SP Printer.**
2. On page 1 (Halftone mode) or page 2 (Contone mode), change the OFFSET values as follows.

9.2.1 For Letter Mode

In the "**=Halftone=**" screen (page 1) of the SP mode, adjust the 11th levels for the colors that need adjusting by changing only the **ID MAX** setting in the **OFFSET** column.

NOTE: The **ID MAX OFFSET** setting should be between 0 and 4.
Do not change the data in the **STEP** columns; these must remain at the default settings.
Do not change the **H**, **M**, or **L** settings in the **OFFSET** column. Such changes will have no effect on the printout, because the various colors in the H, M, and L ranges are produced by dithering (the laser is switched on and off to produce dither patterns).


SP MODES
Copy in SP
Index
<Menu>
Select function or item.
<8>Printer
PAGE 1
Printer γ Correction Data Rough Adjustment =Halftone=
[BK] [Y] [M] [C]
STEP OFFSET STEP OFFSET STEP OFFSET STEP OFFSET
L 01 01 01 01 01 01 01 01
M 01 01 01 01 01 01 01 01
H 01 01 01 01 01 01 01 01
IDMAX 01 01 01 01 01 01 01 01

9.2.2 For Photo Mode

In the "**=Contone=**" screen (page 2), adjust the color scales by changing the γ data in the **OFFSET** columns for each color.

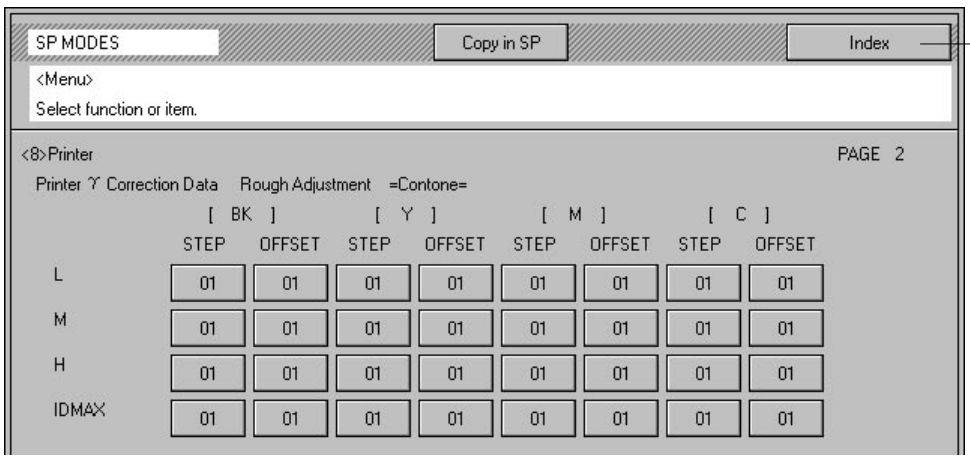
Low: Use to adjust levels 1 to 2 of the 11-step color scale in the middle of the Test Page.

Middle: Use to adjust levels 2 to 10.

High: Use to adjust levels 10 to 11.

ID MAX: Use to adjust the whole range, including level 11.
Do not change this unless the whole range needs to be made brighter or darker. The adjustment is very sensitive, so it is best not to change the default settings.

Do not change the γ data in the STEP column from the default settings.


SP MODES
Copy in SP
Index
[A]
<Menu>
Select function or item.
<8>Printer
PAGE 2
Printer γ Correction Data Rough Adjustment =Contone=
[BK] [Y] [M] [C]
STEP OFFSET STEP OFFSET STEP OFFSET STEP OFFSET
L 01 01 01 01 01 01 01 01
M 01 01 01 01 01 01 01 01
H 01 01 01 01 01 01 01 01
IDMAX 01 01 01 01 01 01 01 01

3. To finish the operation, touch the **Index** [A] key to return to the SP mode menu. Touch the **Exit** key to exit the SP mode.

To save the current data as a back-up

→ Press the **Save in Temporary Memory** key [A].

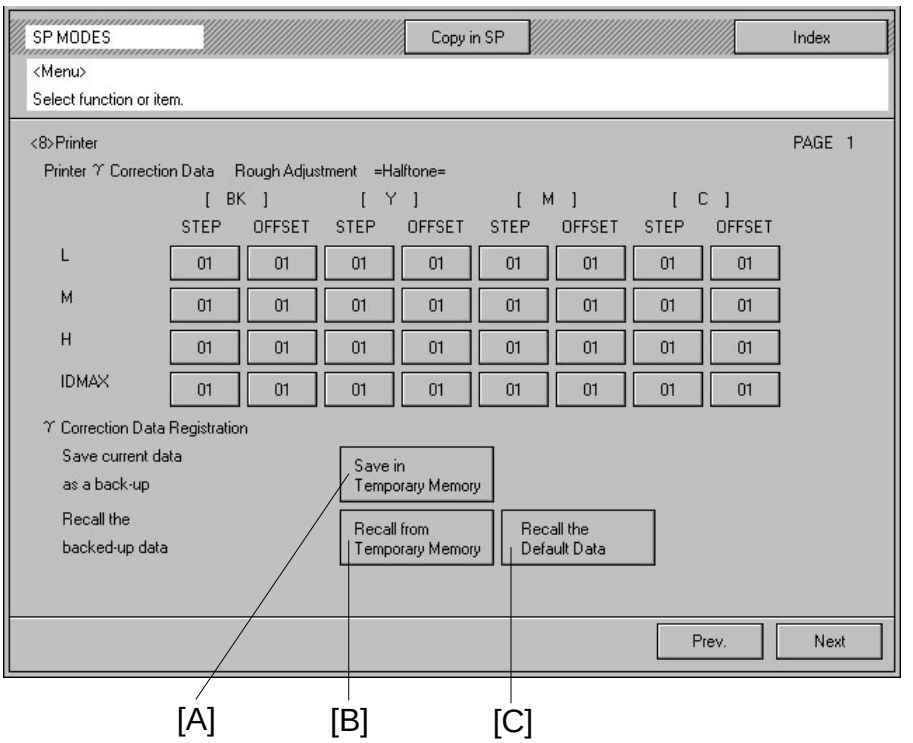
To recall the data from the Temporary Memory, or to undo the last ACC

→ Press the **Recall form Temporary Memory** key [B].

NOTE: When the ACC is performed, the current printer gamma setting will be stored automatically in the Temporary Memory.

To recall the default data

→ Press the **Recall the Default Data** key [C].



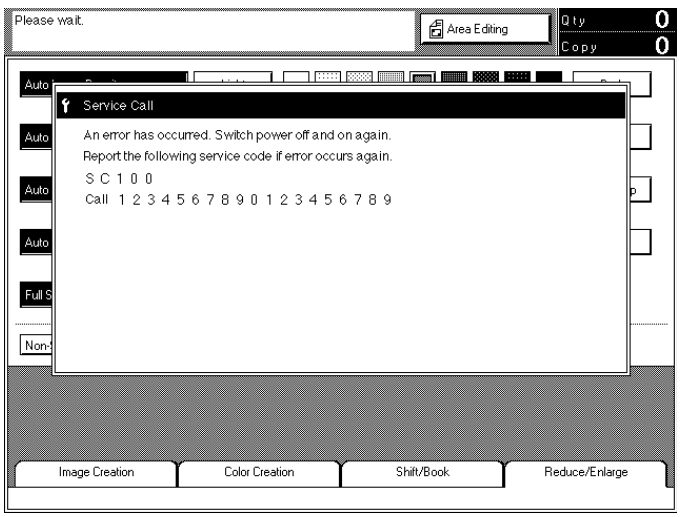
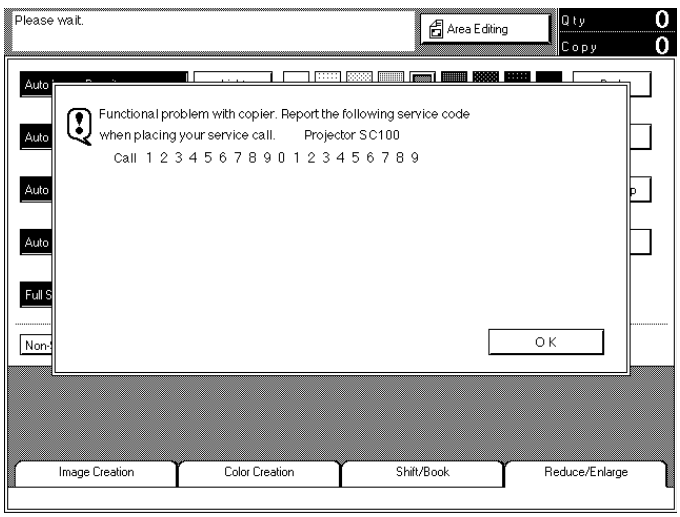
SECTION 6

TROUBLESHOOTING

1. SERVICE CALL CONDITIONS

1.1 SUMMARY

There are 4 levels of service call conditions.

Level	Definition	Display
A	The SC can only be reset by a service representative (see the notes on the next page) to prevent the machine from being damaged. The copier cannot be operated at all.	The SC display will not be canceled. 
B	The SC can be reset by turning main switch off and on if the SC is caused by a misdetection.	
C	The copier can be operated as usual except for the unit related to the service call.	If the related function is selected, this display appears. 
D	Only the SC counter is incremented. The copier can be operated as usual.	The SC will not be displayed.

Trouble-shooting

NOTE: 1) If the problem is related to electrical circuit boards, first disconnect then reconnect the connectors before replacing the PCBs.

2) If the problem is related to motor lock, first check the mechanical load before replacing motors or sensors.

3) To reset a Level A SC, enter SP mode then turn the main switch off and on.

4) When a Level A or B SC condition occurs while in SP mode, the display does not indicate the SC number. You can recognize that there is an SC condition because no key input is possible. If this occurs, check the SC number by turning the main switch off and on and make some test copies.

1.2 SCANNING

SC107: Lamp regulator malfunction

- Definition - [B]

The machine detects lamp regulator malfunctions by monitoring the signal for both the exposure lamp on and off conditions.

- Possible causes -

- Lamp regulator defective
- Exposure lamp open
- Optics thermoswitch open
- Scanner control board defective or poor connection

SC120: Scanner HP sensor abnormal - Stays off

- Definition - [B]

The scanner home position sensor does not detect the on condition during scanner initialization.

- Possible causes -

- Scanner HP sensor defective
- Scanner motor defective or poor connection
- Scanner drive board defective or poor connection
- Scanner control board defective or poor connection
- Loose Allen screw on scanner drive pulleys
- DC power supply board defective (FU802)

SC121: Scanner HP sensor abnormal - Stays on

- Definition - [B]

The scanner home position sensor does not detect the off condition during scanner initialization.

- Possible causes -

- Scanner HP sensor defective
- Scanner motor defective or poor connection
- Scanner drive board defective or poor connection
- Scanner control board defective or poor connection
- Loose Allen screw on scanner drive pulleys
- DC power supply board defective (FU802)

SC130: Scanner start abnormal

- Definition - [B]
  The scanner start signal is detected before the scanner returns to the home position.

- Possible causes -
  - Scanner control board defective

SC170: Scanner DA1 abnormal

- Definition - [B]
  When performing the AGC, DA1 is not in the proper range.

- Possible causes -
  - Poor connection between CCD board and scanner control board
  - Scanner control board defective
  - CCD board defective

SC171: Scanner DA2 abnormal

- Definition - [B]
  When performing the AGC, DA2 is not in the proper range.

- Possible causes -
  - Poor connection between CCD board scanner control board
  - Scanner control board defective
  - CCD board defective

SC172: Scanner DA3 abnormal

- Definition - [B]
  When performing the AGC, DA3 is not in the proper range.

- Possible causes -
  - Dirty white plate, reflectors, mirrors, or lens
  - White plate on the exposure glass not properly positioned
  - Exposure lamp deteriorated
  - Scanner or mirrors not properly positioned
  - Scanner control board defective
  - CCD board defective

SC173: Lamp regulator adjustment error

- Definition - [B]

When performing the AGC with the lamp voltage at 72 V, the CCD output does not exceed 1 V.

- Possible causes -

If the exposure lamp lights during AGC

- White plate on the exposure glass not properly positioned
- Dirty white plate, reflectors, mirrors, or lens
- Poor connection between lamp regulator and scanner drive board (CN105) or between scanner control board and scanner drive board (CN101)
- Exposure lamp deteriorated
- CCD board defective
- Scanner or mirrors not properly positioned
- Lamp regulator defective or poor connection (CN3)
- Scanner control board defective or poor connection (CN106)

If the exposure lamp does not light during AGC

- Poor connection between lamp regulator and scanner drive board (CN105) or between scanner control board and scanner drive board (CN101)
- No ac input to lamp regulator (CN1) $\rightarrow$ AC drive board or main power relay defective
- Lamp regulator defective or poor connection (CN3)
- Scanner control board defective or poor connection (CN106)

SC174: Scanner DA2* abnormal

- Definition - [B]

When performing the AGC, DA2* is not in the proper range.

- Possible causes -

- Poor connection between CCD board and scanner control board
- Scanner control board defective
- CCD board defective

SC191: Bar code scanning error

- Definition - [B]
  The bar code for the machine identification number cannot be detected when the AGC is performed after the main switch is turned on.

- Possible causes -
  - The bar code label is dirty.
  - Scanner mirrors are not in position

SC192: Bar code number is different

- Definition - [B]
  The bar code number is not identical to the machine identification number stored in memory.

- Possible causes -
  - Wrong machine identification number in memory
  - Machine identification number is not entered in the new (replaced) RAM board
  - RAM board defective
  - Main control board defective

SC193: IDU connection error

- Definition - [B]
  IDU connection cannot be detected.

- Possible Causes -
  - IDU is disconnected
  - IDU defective

SC194: IDU detection error

- Definition - [B]
  IDU detection error

- Possible Causes -
  - IDU defective

1.3 PRINTING

SC302: See AROUND THE DRUM

SC303: See AROUND THE DRUM

SC320: Polygon motor lock

- Definition - [B]
  The polygon motor lock signal is detected for more than 3 seconds.

- Possible causes -
  - Polygon motor defective
  - Polygon motor drive board defective
  - Scanner control board defective

SC321: Transfer belt start signal error

- Definition - [B]
  The transfer belt start signal is not detected within 500 ms relative to the programmed timing.

- Possible causes -
  - IPU board defective
  - DIP SW301-1 on the IPU board is not ON

SC322: Laser synchronizing signal error

- Definition - [B]
  The intervals between laser synchronizing signals become over 1.2 times the normal interval.

- Possible causes -
  - Laser synchronizing detector board defective
  - Scanner control board defective
  - Laser synchronizing detector board not properly positioned
  - LD unit defective

SC323: LD drive current over

- Definition - [B]
  The LD drive board applies more than 100 mA to the LD for over 2.3 ms.

- Possible causes -
  - LD unit defective

1.4 DEVELOPMENT

SC341: Bk-development motor lock

- Definition - [B]

The Bk-development motor lock signal is detected for more than 3 seconds.

- Possible causes -

- Bk-development motor defective or poor connection
- Too much load on the Bk-development section
- Interface board 1 defective or poor connection (CN708)
- Main control board defective

SC342: Bk-sleeve motor lock

- Definition - [B]

The Bk-sleeve motor lock signal is detected for more than 3 seconds.

- Possible causes -

- Bk-sleeve motor defective or poor connection
- Too much load on the Bk-sleeve roller
- Interface board 1 defective or poor connection (CN708)
- Main control board defective

SC343: Y-sleeve motor lock

- Definition - [B]

The Y-sleeve motor lock signal is detected for more than 3 seconds.

- Possible causes -

- Y-sleeve motor defective or poor connection
- Too much load on the Y-sleeve roller
- Interface board 2 defective or poor connection (CN806)
- Main control board defective

SC344: M-sleeve motor lock

- Definition - [B]
  The M-sleeve motor lock signal is detected for more than 3 seconds.

- Possible causes -
  - M-sleeve motor defective or poor connection
  - Too much load on the M-sleeve roller
  - Interface board 2 defective or poor connection (CN806)
  - Main control board defective

SC345: C-sleeve motor lock

- Definition - [B]
  The C-sleeve motor lock signal is detected for more than 3 seconds.

- Possible causes -
  - C-sleeve motor defective or poor connection
  - Too much load on the C-sleeve roller
  - Interface board 2 defective or poor connection (CN806)
  - Main control board defective

SC346: Color-development motor lock

- Definition - [B]
  The Color-development motor lock signal is detected for more than 3 seconds.

- Possible causes -
  - Color-development motor defective or poor connection
  - Too much load on one of the C/M/Y-development sections
  - Interface board 1 defective or poor connection (CN708)
  - Main control board defective

SC350: Bk-TD sensor initial setting error

SC351: Y-TD sensor initial setting error

SC352: M-TD sensor initial setting error

SC353: C-TD sensor initial setting error

- Definition - [B]
  TD sensor output (Vt) does not reach a value between 2.4 and 2.6 V when performing the toner density initial setting.

- Possible causes -
  - TD sensor defective
  - Main control board defective
  - Developer not distributed evenly

SC354: Bk-TD sensor gain adjustment error

SC355: Y-TD sensor gain adjustment error

SC356: M-TD sensor gain adjustment error

SC357: C-TD sensor gain adjustment error

- Definition - [B]
  When adjusting TD sensor gain during the toner density initial setting, Vcnt (output voltage) does not reach a value between 7 and 11 V.

- Possible causes -
  - Main control board defective

SC360: Development bias leak

- Definition - [B]
  The development bias leak signal is detected for more than 3 seconds.

- Possible causes -
  - Sleeve roller receptacle damaged
  - High voltage supply board - B defective

SC370: Bk-TD sensor upper detection abnormal

SC371: Y-TD sensor upper detection abnormal

SC372: M-TD sensor upper detection abnormal

SC373: C-TD sensor upper detection abnormal

- Definition - [B]
  TD sensor output (Vt) exceeds 4.5 V during copy cycles.

- Possible causes -
  - TD sensor defective
  - Main control board defective
  - Too much toner in the development unit (accidental)

SC374: Bk-TD sensor lower detection abnormal

SC375: Y-TD sensor lower detection abnormal

SC376: M-TD sensor lower detection abnormal

SC377: C-TD sensor lower detection abnormal

- Definition - [B]
  TD sensor output (Vt) becomes lower than 0.5 V during copy cycles.

- Possible causes -
  - TD sensor defective
  - Main control board defective
  - Toner supply system defective

1.5 AROUND THE DRUM

SC302: Charge current leak

- Definition - [B]
  A charge current leak signal is detected for more than 3 seconds.

- Possible causes -
  - Charge corona end block damaged
  - Charge corona receptacle damaged
  - High voltage supply board - C/G defective

SC303: Wire cleaner motor error

- Definition - [B]
  Over current signal is detected for more than 10 seconds, when the wire cleaner motor rotates.

- Possible causes -
  - Wire cleaner motor defective
  - Wire cleaner drive board defective
  - Wire cleaner pad unit not properly positioned

SC380: Drum potential sensor calibration error

- Definition - [D]
  When performing the process control self-check, the drum potential sensor is not calibrated properly. The previous settings are used in this case. If there are no previous settings, the defaults are used.

- Possible causes -
  - Drum potential sensor defective
  - Interface board 1 defective
  - Main control board defective
  - High voltage supply board - B defective

SC381: Charge potential abnormal

- Definition - [D]
  When performing the process control self-check, the charge potential of the drum is not in the proper range.

- Possible causes -
  - High voltage supply board- C/G defective
  - Main control board defective

SC382: V_D adjustment error

- Definition - [D]

When doing the process control self-check, V_D does not come within 5 V of the target after 30 trials. The previous settings for V_G, V_B, and I_{LD} are used in this case. If there are no previous settings, the defaults are used.

- Possible causes -

- High voltage supply board - C/G defective
- Main control board defective

SC383: V_L adjustment error

- Definition - [D]

When performing the process control self-check, V_L does not come within 5 V of the target after 30 trials. The previous settings for V_G, V_B, and I_{LD} are used in this case. If there are no previous settings, the defaults are used.

- Possible causes -

- LD drive board defective
- IPU board defective

SC384: LD exposure abnormal

- Definition - [D]

When performing the process control self-check, the potentials on the 14-step gradation pattern do not come within the target range.

- Possible causes -

- LD drive board defective
- IPU board defective

SC390: ID sensor adjustment error

- Definition - [D]

When performing the process control self-check, Vsg adjustment does not result in 4.0 ± 0.2 V.

- Possible causes -

- ID sensor defective
- Main control board defective
- ID sensor too dirty

SC422: PCC leak

- Definition - [B]
  A PCC leak signal is detected for more than 3 seconds.

- Possible causes -
  - PCC end block damaged
  - High voltage supply board - T1/PCC/BR defective

SC440: Drum motor lock

- Definition - [B]
  The drum motor lock signal is detected for more than 3 seconds.

- Possible causes -
  - Too much load on the drum drive mechanism
  - Drum motor defective or poor connection
  - Interface board 1 defective or poor connection (CN708)
  - Main control board defective

1.6 TRANSFER BELT / ROLLER

SC405: Transfer belt position abnormal

- Definition - [B]

The transfer belt is positioned to touch the drum in the following conditions:
Belt and drum cleaning completed after the main switch is turned on
Belt and drum cleaning completed after a paper jam is removed
Copy job completed

- Possible causes -

- Transfer belt position sensor defective
- Transfer belt position clutch defective
- Interface board 1 defective
- Main control board defective

SC406: Transfer roller position abnormal

- Definition - [B]

The transfer roller is positioned to touch the transfer belt in the following conditions:
Belt and drum cleaning completed after the main switch is turned on
Belt and drum cleaning completed after a paper jam is removed
Copy job completed

- Possible causes -

- Transfer roller position sensor defective
- Transfer roller position clutch defective
- Interface board 2 defective
- Main control board defective

SC411: Paper discharge leak

- Definition - [B]

A paper discharge leak signal is detected for more than 3 seconds.

- Possible causes -

- Paper discharge plate is touching a conductive foreign object
- High voltage supply board - D defective

SC420: Cleaning motor lock

- Definition - [B]
  The cleaning motor lock signal is detected for more than 3 seconds.

- Possible causes -
  - Cleaning motor defective or poor connection
  - Interface board 1 defective or poor connection (CN710)
  - Main control board defective

SC422: See AROUND THE DRUM

SC440: See AROUND THE DRUM

1.7 PAPER FEED

SC500: Transport motor lock

- Definition - [B]
  The transport motor lock signal is detected for more than 3 seconds.

- Possible causes -
  - Too much load on the transport unit, fusing unit, transfer roller unit, or transfer belt cleaning unit
  - Transport motor defective or poor connection
  - Interface board 2 defective or poor connection (CN806)
  - Main control board defective

SC502: 1st tray lift motor abnormal

SC503: 2nd tray lift motor abnormal

SC504: 3rd tray lift motor abnormal

- Definition - [C]
  The lift sensor is not activated within 10 seconds after the lift motor starts turning. The SC message for level C is displayed when this condition is detected twice.

- Possible causes -
  - Lift sensor defective
  - Tray lift motor defective or poor connection
  - Paper feed interface board defective or poor connection (CN906)
  - Main control board defective

SC510: Paper feed motor abnormal

- Definition - [B]
  The paper feed motor lock signal is detected for more than 3 seconds.

- Possible causes -
  - Too much load on the paper feed mechanism
  - Paper feed motor defective or poor connection
  - Paper feed interface board defective or poor connection (CN910)
  - Main control board defective

1.8 FUSING

SC541: Fusing (hot roller) thermistor open

- Definition - [A]
  The output of the fusing (hot roller) thermistor goes to 5 V, corresponding to 0°C.

- Possible causes -
  - Fusing (hot roller) thermistor open
  - Fusing unit not installed
  - Main control board defective

SC542: Fusing (hot roller) warm-up error

- Definition - [A]
  The fusing (hot roller) temperature does not reach the ready temperature within 12 minutes after the main switch is turned on.

- Possible causes -
  - Fusing (hot roller) thermistor not in position
  - Fusing (hot roller) lamp open
  - Fusing (hot roller) thermistor defective
  - Main control board defective

SC543: Fusing (hot roller) overheat

- Definition - [A]
  A fusing (hot roller) temperature of over 200°C is detected 5 times (within 5 seconds).

- Possible causes -
  - Fusing (hot roller) thermistor defective
  - AC drive board defective (triac)
  - Main control board defective

SC544: Fusing (hot roller) low temperature abnormal

- Definition - [A]

A fusing (hot roller) temperature of below 90°C is detected 6 times (within 6 seconds) after warm-up is completed.

- Possible causes -

- Fusing (hot roller) thermistor defective
- AC drive board defective
- Main control board defective
- Fusing (hot roller) thermistor not in position
- Fusing (hot roller) lamp open

SC545: Fusing (hot roller) ready temperature abnormal

- Definition - [A]

Fusing (hot roller) temperature goes below the ready temperature (10°C below the control temperature) after warm-up is completed, and it does not reach the ready temperature within 6 minutes.

- Possible causes -

- Fusing (hot roller) thermistor defective
- AC drive board defective
- Main control board defective

SC547: Fusing (hot roller) temperature does not increase

- Definition - [A]

During warm-up, the fusing (hot roller) temperature does not increase when compared to the temperature 1 minute before.

- Possible causes -

- Fusing (hot roller) thermistor defective
- AC drive board defective
- Main control board defective

SC551: Pressure roller thermistor open

- Definition - [A]
  The output of the pressure roller thermistor goes to 5 V, corresponding to 0°C.

- Possible causes -
  - Pressure roller thermistor open
  - Main control board defective
  - Fusing unit not installed

SC552: Pressure roller warm-up error

- Definition - [A]
  Pressure roller temperature does not reach the ready temperature within 12 minutes after the main switch is turned on.

- Possible causes -
  - Pressure roller thermistor not in position
  - Pressure roller lamp open
  - Pressure roller thermistor defective
  - Main control board defective

SC553: Pressure roller overheat

- Definition - [A]
  A pressure roller temperature of over 180°C is detected 5 times.

- Possible causes -
  - Pressure roller thermistor defective
  - AC drive board defective (triac)
  - Main control board defective

SC554: Pressure roller low temperature abnormal

- Definition - [A]

A pressure roller temperature of below 70°C is detected 6 times after warm-up is completed.

- Possible causes -

- Pressure roller thermistor defective
- AC drive board defective
- Main control board defective
- Pressure roller thermistor not in position
- Pressure roller lamp open

SC555: Pressure roller ready temperature abnormal

- Definition - [A]

The pressure roller temperature goes below the ready temperature (10°C below the control temperature) after warm-up is completed, and does not reach the ready temperature within 6 minutes.

- Possible causes -

- Pressure roller thermistor defective
- AC drive board defective
- Main control board defective

SC557: Pressure roller temperature does not increase

- Definition - [A]

During warm-up, pressure roller temperature does not increase when compared to the temperature 1 minute before.

- Possible causes -

- Pressure roller thermistor defective
- AC drive board defective
- Main control board defective

SC558: Zero cross signal abnormal

- Definition - [A]

Zero cross signals are not detected within a certain period.

- Possible causes -

- Main control board defective

1.9 COMMUNICATION

SC600: Communication error between main control and operation panel boards

- Definition - [B]

The main CPU cannot communicate with the operation panel CPU properly.

- Possible causes -

- Poor connection between main control board and operation panel board
- Main board defective
- Operation panel defective

SC601: Communication error between main control and scanner control boards

- Definition - [B]

The main CPU cannot communicate with the scanner control CPU properly.

- Possible causes -

- Poor connection between main control board and scanner control board (optical fiber cable)
- Optical fiber cable defective
- Main control board defective
- Scanner control board defective
- DC power supply board defective (no dc 5V input to scanner control board)

SC602: Communication error between main control and transfer belt motor drive boards

- Definition - [B]

The main CPU does not receive the response signal from the transfer belt drive board after 3 tries.

- Possible causes -

- Poor connection between main control board and transfer belt drive board
- Main control board defective
- Transfer belt drive board defective

SC603: Communication error within main control board

- Definition - [B]
  The CPUs on the main control board cannot communicate properly with each other.

- Possible causes -
  - Main control board defective

SC604: Serial signal error in main control board

- Definition - [B]
  Writing and reading serial signals for the DRAM produces discrepancies.

- Possible causes -
  - Main control board defective

SC605: Communication error between main control and IPU boards

- Definition - [B]
  The main CPU cannot communicate with the IPU CPU properly.

- Possible causes -
  - Poor connection between main control board and IPU board
  - Main control board defective
  - IPU board defective

SC622: Communication error between main control board and display editor I/F board

- Definition - [C]
  The main CPU cannot start communication with the editor I/F properly.

- Possible causes -
  - Poor connection between main control board and the display editor I/F board
  - Main control board defective
  - Display editor I/F board defective

SC623: Communication error between main control board and projector unit

- Definition - [B]

The main CPU cannot start communication with the projector unit properly.

- Possible causes -

- Poor connection between main control board and projector unit
- Main control board defective
- Option interface board defective
- Projector control board defective

1.10 OPTIONAL EQUIPMENT

SC700: DJF feed-in motor abnormal

SC701: DJF belt drive motor abnormal

SC702: DJF feed out motor abnormal

- Definition - [D]

The encoder pulse is not detected by the DJF main board under each motor on condition. The first time, an original jam occurs. The second time, an SC is displayed.

- Possible causes -

- DJF feed-in motor defective
- DJF belt drive motor defective
- DJF feed out motor defective

SC703: Size detection encoder pulse error

- Definition - [C]

The encoder pulse from the pull-out roller is not detected by the DJF main board. The first original jam will not display an SC. The second jam, however, will display an SC code.

- Possible causes -

- Pulse generator defective
- Original length detection error
- Original has slipped

SC704: DJF friction belt motor abnormal

- Definition - [D]

The encoder pulse is not detected by the DJF main board under the friction belt motor on condition. The first original jam will not display an SC. The second jam, however, will display an SC code.

- Possible causes -

- Friction belt turn sensor defective
- Friction belt motor defective
- Pulse generator defective
- Some tension has been applied to the friction belt

SC730: Sorter motor abnormal

- Definition - [B]
  The encoder pulse is not detected by the sorter control board for 200 ms after the sorter motor starts. A paper jam indication is displayed the first time. An SC is displayed the second time.

- Possible causes -
  - Sorter motor defective

SC790: Projector lamp does not turn on

- Definition - [C]
  The projector lamp does not turn on 100 ms after 10 V (or more) is applied to the lamp.

- Possible causes -
  - Projector lamp open
  - Thermofuse blown

SC791: Projector lamp does not turn off

- Definition - [C]
  The projector lamp stays on when it should turn off.

- Possible causes -
  - Projector lamp regulator defective

SC792: Projector lamp overheat

- Definition - [C]
  The projector control board detects a lamp overheat condition through the thermistor.

- Possible causes -
  - Projector lamp regulator defective
  - Thermistor defective

1.11 OTHERS

SC900: Bk-total counter not on

- Definition - [B]
  The Bk-total counter does not turn on.

- Possible causes -
  - Bk-total counter defective
  - DC power supply board defective (FU803, FU804)

SC901: Bk-total counter not off

- Definition - [B]
  The Bk-total counter does not turn off.

- Possible causes -
  - Bk-total counter defective

SC902: FC-total counter does not turn on

SC903: FC-total counter does not turn off

- Definition - [B]
  The FC-total counter does not turn on or off.

- Possible causes -
  - FC-total counter defective

1.12 ACC Control

SC910: ACC Calculation Error (Letter Mode: Bk)

SC911: ACC Calculation Error (Letter Mode: C)

SC912: ACC Calculation Error (Letter Mode: M)

SC913: ACC Calculation Error (Letter Mode: Y)

SC914: ACC Calculation Error (Photo Mode: Bk)

SC915: ACC Calculation Error (Photo Mode: C)

SC916: ACC Calculation Error (Photo Mode: M)

SC917: ACC Calculation Error (Photo Mode: Y)

- Definition - [D]

  Even if the test pattern has been scanned in, the CPU on the IPU could not find the appropriate adjustment table to approximate the actual curve to the target gamma curve.

- Possible Causes -

  - IPU defective

SC920: ACC not performed (internal error)

- Definition - [D]

  Under any of the following conditions, the ACC will not performed.

  1) Process Control self-check error, ID sensor error, Drum potential sensor error, Potential control error.
  2) When an SC occurs while the ACC test pattern is printed.
  3) When the TD sensor output (Vt) value becomes lower than 2.5 ± 1.0 V.

- Possible Causes -

  - The actual printer gamma curve changed over a big range (caused by process control self-check).
  - Main Control Board defective

2. BLOWN FUSE CONDITIONS

Fuse	Rating		Symptom (Main Switch: ON)
	110 - 120 V	220 – 240 V	
DC Power Supply Board			
FU801	8 A/125 V	5 A/250 V	No response
FU802	6.3 A/125 V		SC121 (Scanner HP sensor abnormal - stays on) or SC120 (Scanner HP sensor abnormal - stays off)
FU803	6.3 A/125 V		SC900 (Bk-total counter not on)
FU804	6.3 A/125 V		SC900 when the Start key is pressed, or misfeed occurs before registration when copy mode without black is selected.

3. OPERATION PANEL SELF-DIAGNOSTIC MODES

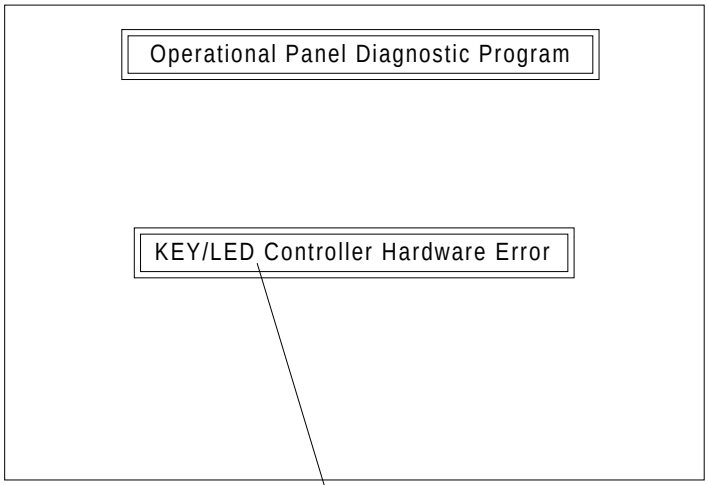
The machine can make a self-diagnosis on the operation panel (operation control unit).

3.1 OPERATION PANEL SELF-DIAGNOSTIC TESTS

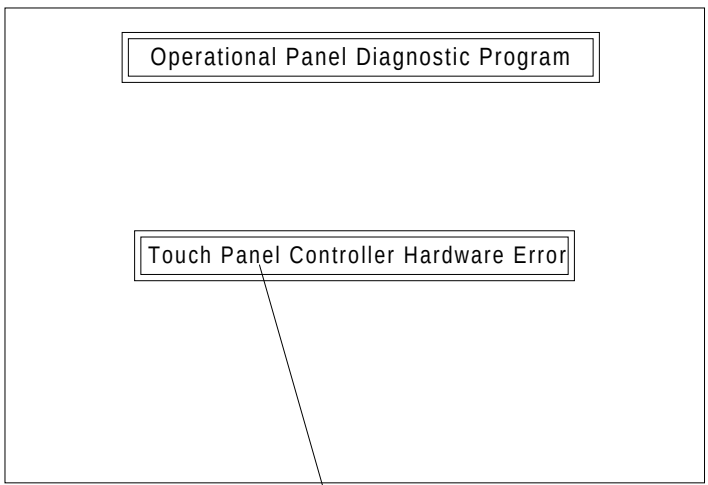
The machine can perform the following tests on the operation control unit:

- Main RAM read/write test
- System ROM check sum test
- Video RAM read/write test
- VGA register test
- LCD pattern test
- Touch panel test
- LED/Conventional key test
- CMOS RAM test

3.2 STARTING THE OPERATIONAL DIAGNOSTIC PROGRAM



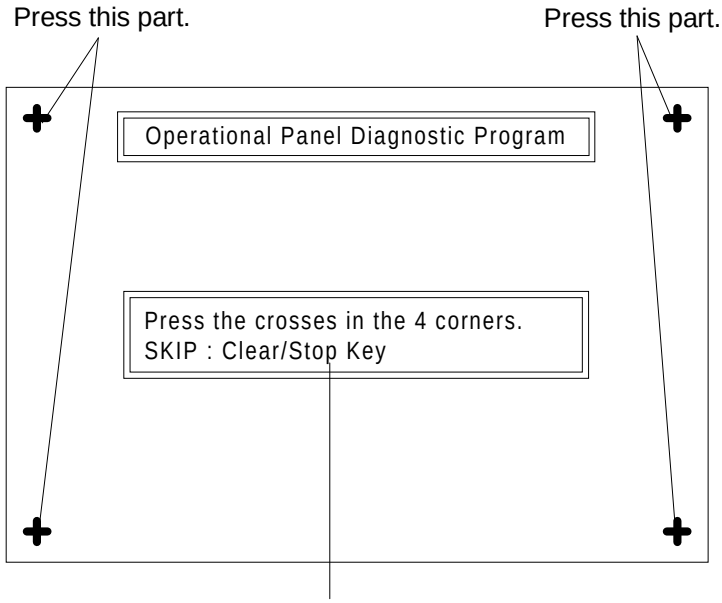
Message indicating a problem with the key/LED controller



Message indicating a problem with the touch panel controller

1. To start the operational diagnostic program, turn on the main switch while pressing the [Option] key, then press the [Start] key.
2. If there is an error before the main menu is displayed, the operation control unit system displays the error message as shown in the above diagrams. This error message indicates that something is wrong inside the operation control unit.
   If this error message appears, turn off the main switch to forcibly terminate the operational diagnostic program.

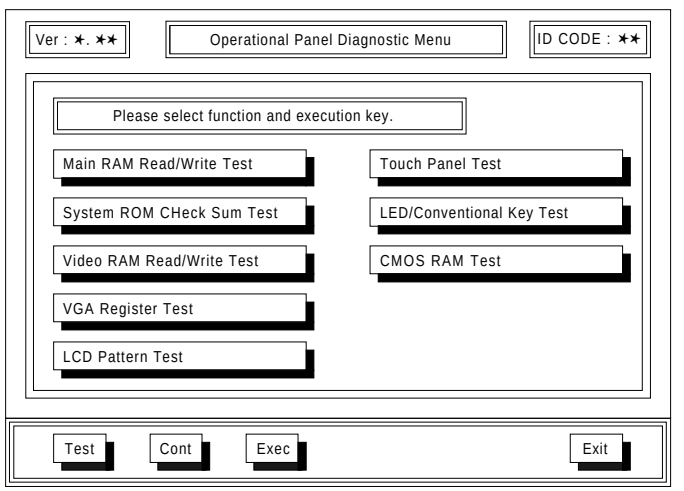
3. When you start the operational diagnostic program, the system displays the point accuracy calibration screen.


Press this part.
Press this part.
Operational Panel Diagnostic Program
Press the crosses in the 4 corners.
SKIP : Clear/Stop Key
Message indicating an instruction to press the crosses in the four corners.
Pressing the Clear/Stop key skips the menu.

a) If the point accuracy calibration is necessary, touch the crosses in the four corners with the editor pen. This enables the correct touch key operation in the subsequent self diagnostic program screen.

NOTE: You can press the crosses in any order.
This calibration is independent from the point accuracy of the standard operation panel screen.

b) When the calibration is unnecessary, press the Clear/Stop key to go to the menu screen.

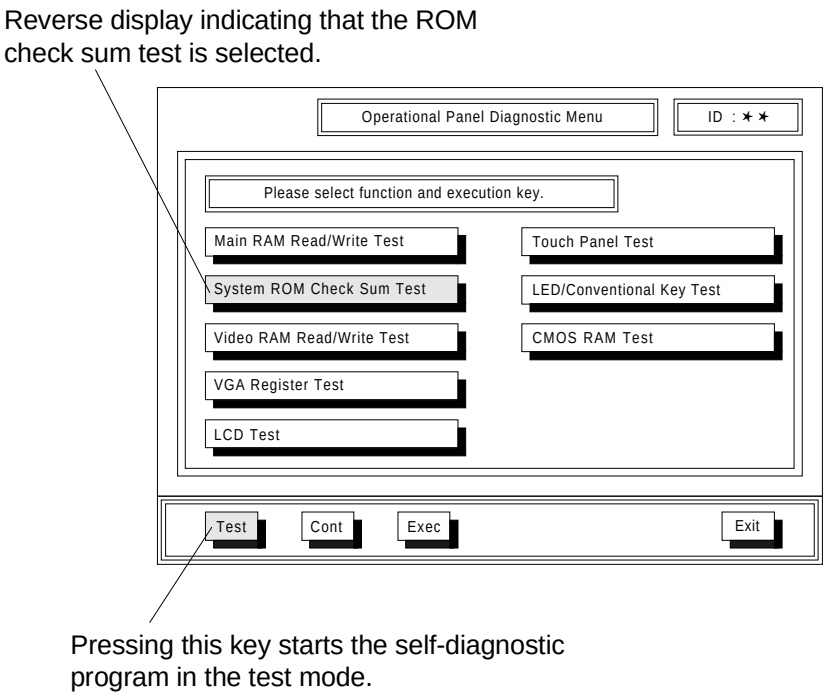


3.3 SELF-DIAGNOSTIC MODES

The following three self-diagnostic modes are available.

Usually, the test mode is the most convenient for self-diagnosis.

(1) Test mode



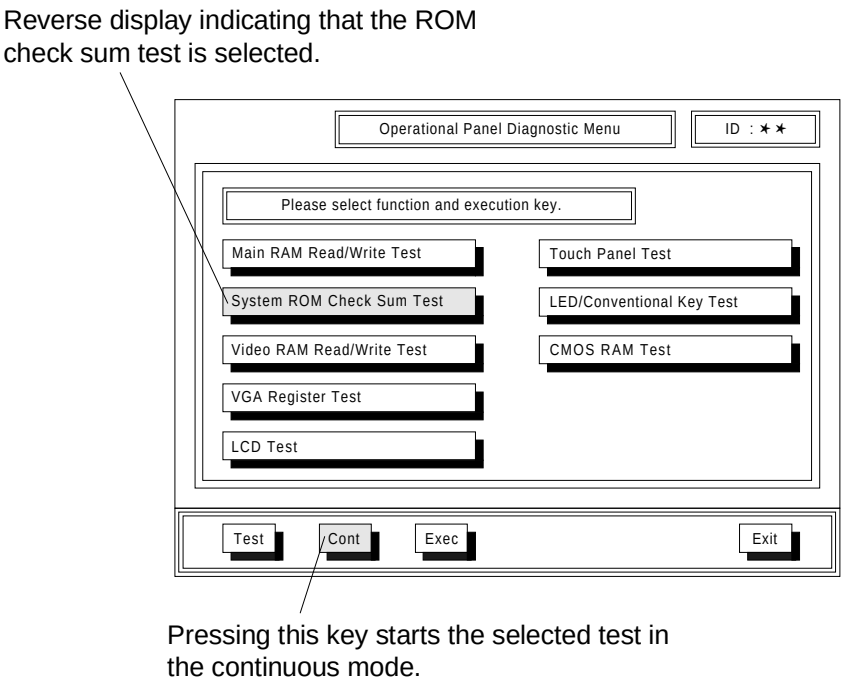
The self-diagnostic program in the test mode executes the selected test and all the subsequent tests.

Note that the following tests involve the use of touch panel operation to start the tests:

- LCD pattern test
- Touch panel test
- LED/conventional key test
- CMOS RAM test

If it detects a problem, the self-diagnostic system stops executing the test and displays information about the problem.

(2) Continuous mode

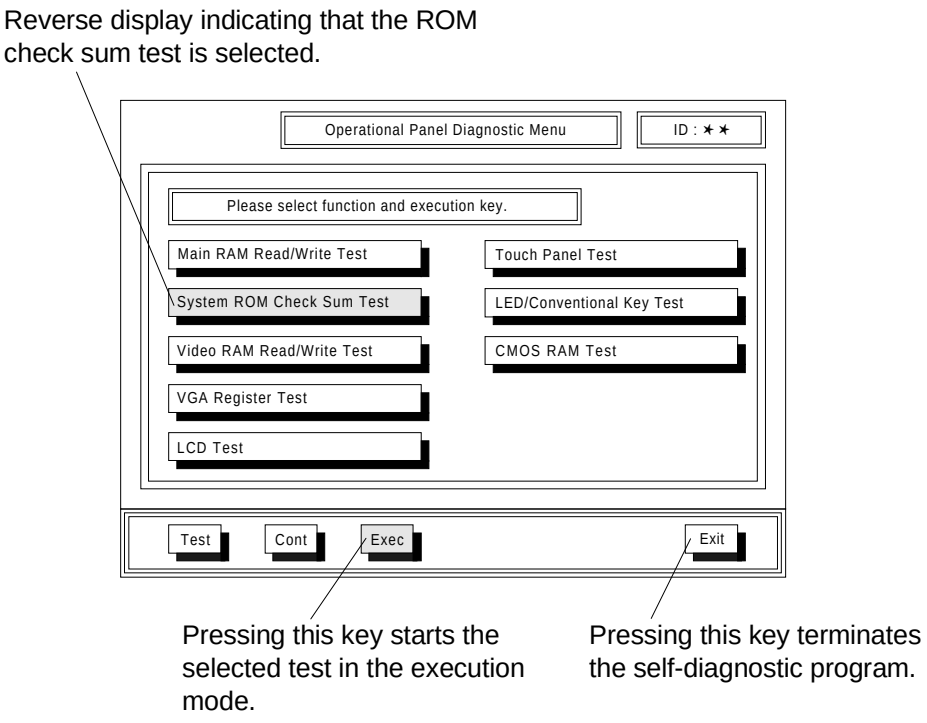


The self-diagnostic program in the continuous mode repeats the selected test without cessation. It displays the number of times it repeats the test. You can stop this test by using the End key. If a problem is detected, the machine stops the test and displays information about the problem. The self-diagnostic program does not support the continuous mode for the following tests:

- LCD pattern test
- Touch panel test
- LED/conventional key test
- CMOS RAM test

(3) Execution mode

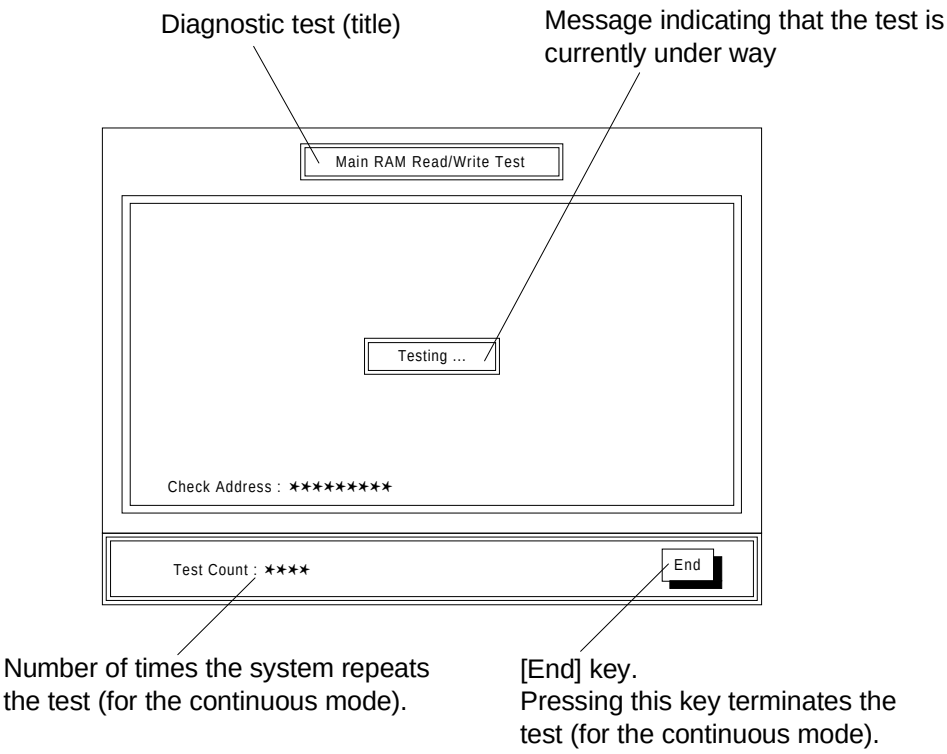
The self-diagnostic program in the execution mode executes the selected test once.

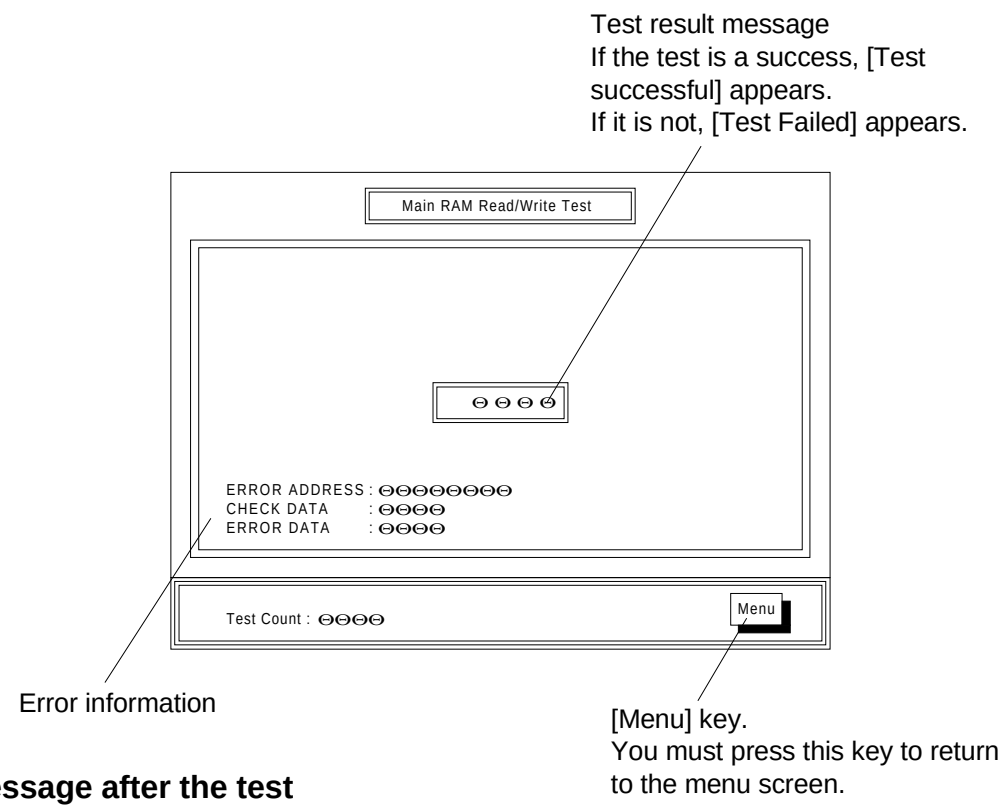

Reverse display indicating that the ROM check sum test is selected.
Operational Panel Diagnostic Menu
ID : ✶✶
Please select function and execution key.
Main RAM Read/Write Test
Touch Panel Test
System ROM Check Sum Test
LED/Conventional Key Test
Video RAM Read/Write Test
CMOS RAM Test
VGA Register Test
LCD Test
Test
Cont
Exec
Exit
Pressing this key starts the selected test in the execution mode.
Pressing this key terminates the self-diagnostic program.

3.4 Details about Operation Panel Self-diagnosis

Select a test. Then, select a mode.

3.4.1 Main RAM read/write test


Diagnostic test (title)
Message indicating that the test is currently under way
Main RAM Read/Write Test
Testing ...
Check Address : ********
Test Count : ****
End
Number of times the system repeats the test (for the continuous mode).
[End] key.
Pressing this key terminates the test (for the continuous mode).


Test result message
If the test is a success, [Test successful] appears.
If it is not, [Test Failed] appears.
Main RAM Read/Write Test
ERROR ADDRESS : ΘΘΘΘΘΘΘΘ
CHECK DATA : ΘΘΘΘ
ERROR DATA : ΘΘΘΘ
Test Count : ΘΘΘΘ
Menu
Error information
[Menu] key.
You must press this key to return to the menu screen.

(i) Message after the test

(a) If the test is successful:

- [Test Successful] appears at the center of the screen.

(b) If the test is unsuccessful:

- [Test Failed] appears at the center of the screen.
- Error information appears at the lower left-hand corner of the screen.

Remarks: Error information

Error address	Segment + Offset for an area of 1 MByte or less
Check data	Value written at test execution time
Error data	Value read from the same position that was written into

(ii) Processing after the test

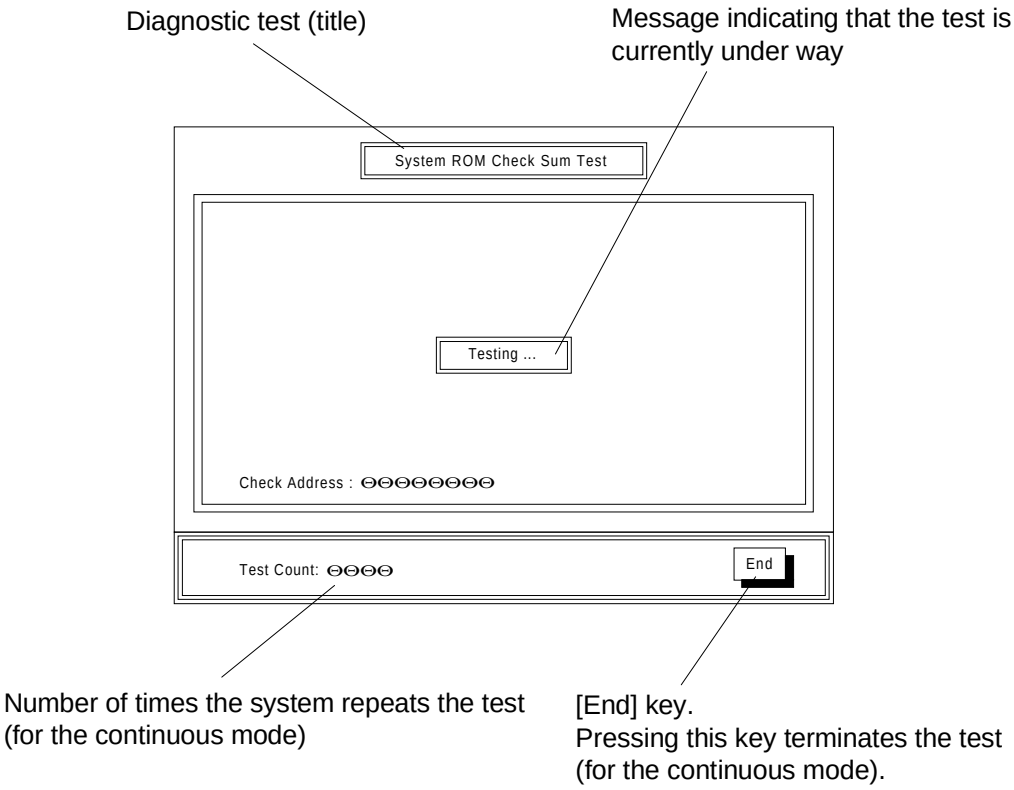
(a) If the test is successful:

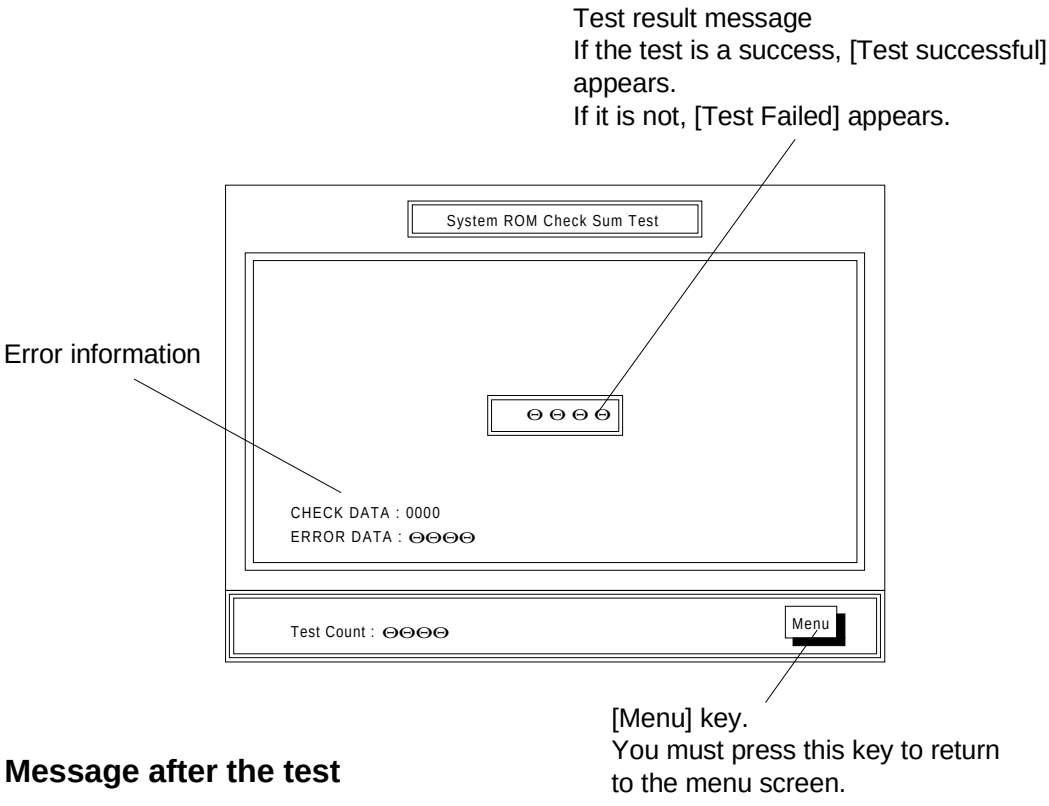
- Test mode: The system executes the next test.
- Continuous mode: The system repeats the same test.
- Execution mode: The system displays [Menu].
  You must press [Menu] to return to the menu screen.

(b) If the test is unsuccessful:

- The system displays the error information and [Menu].
  You must press [Menu] to return to the menu screen.

3.4.2 System ROM check sum test


Diagnostic test (title)
Message indicating that the test is currently under way
System ROM Check Sum Test
Testing ...
Check Address : ΘΘΘΘΘΘΘΘ
Test Count: ΘΘΘΘ
End
Number of times the system repeats the test (for the continuous mode)
[End] key.
Pressing this key terminates the test (for the continuous mode).


Test result message
If the test is a success, [Test successful] appears.
If it is not, [Test Failed] appears.
System ROM Check Sum Test
Error information
CHECK DATA : 0000
ERROR DATA : ΘΘΘΘ
Test Count : ΘΘΘΘ
Menu
[Menu] key.
You must press this key to return to the menu screen.

(i) Message after the test

(a) If the test is successful:

- [Test Successful] appears at the center of the screen.

(b) If the test is unsuccessful:

- [Test Failed] appears at the center of the screen.
- Error information appears at the lower left-hand corner of the screen.

Remarks: Error information

Check data	0000h is displayed because of 0 addition.
Error data	Result of adding data in word units

(ii) Processing after the test

(a) If the test is successful:

- Test mode: The system executes the next test.
- Continuous mode: The system repeats the same test.
- Execution mode: The system displays [Menu].
  You must press [Menu] to return to the menu screen.

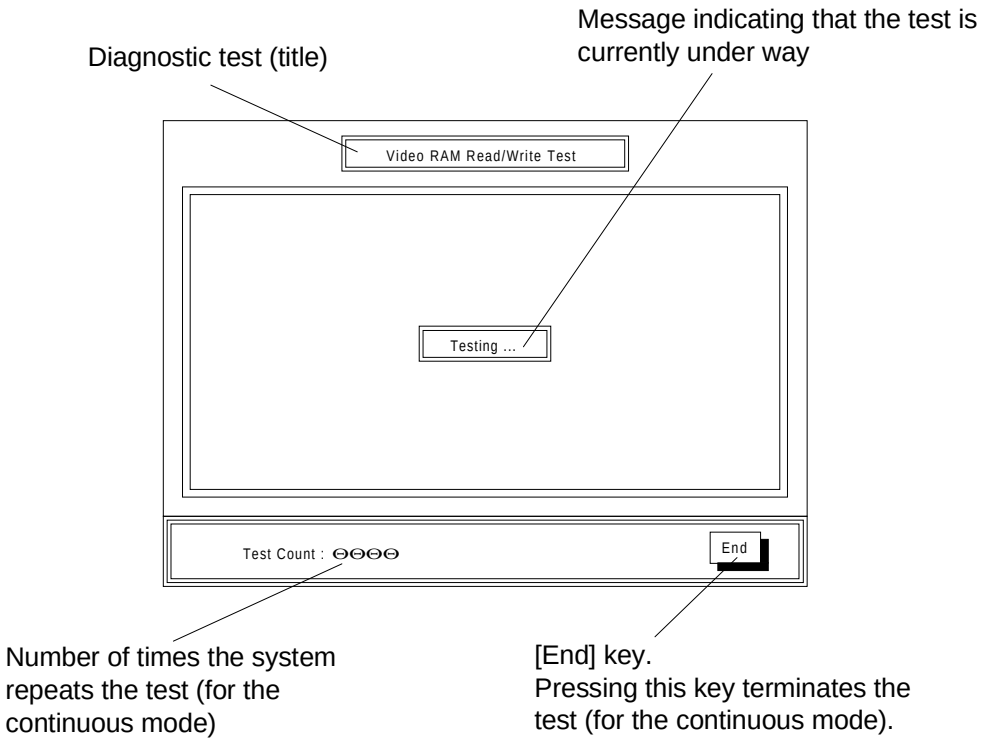
(b) If the test is unsuccessful:

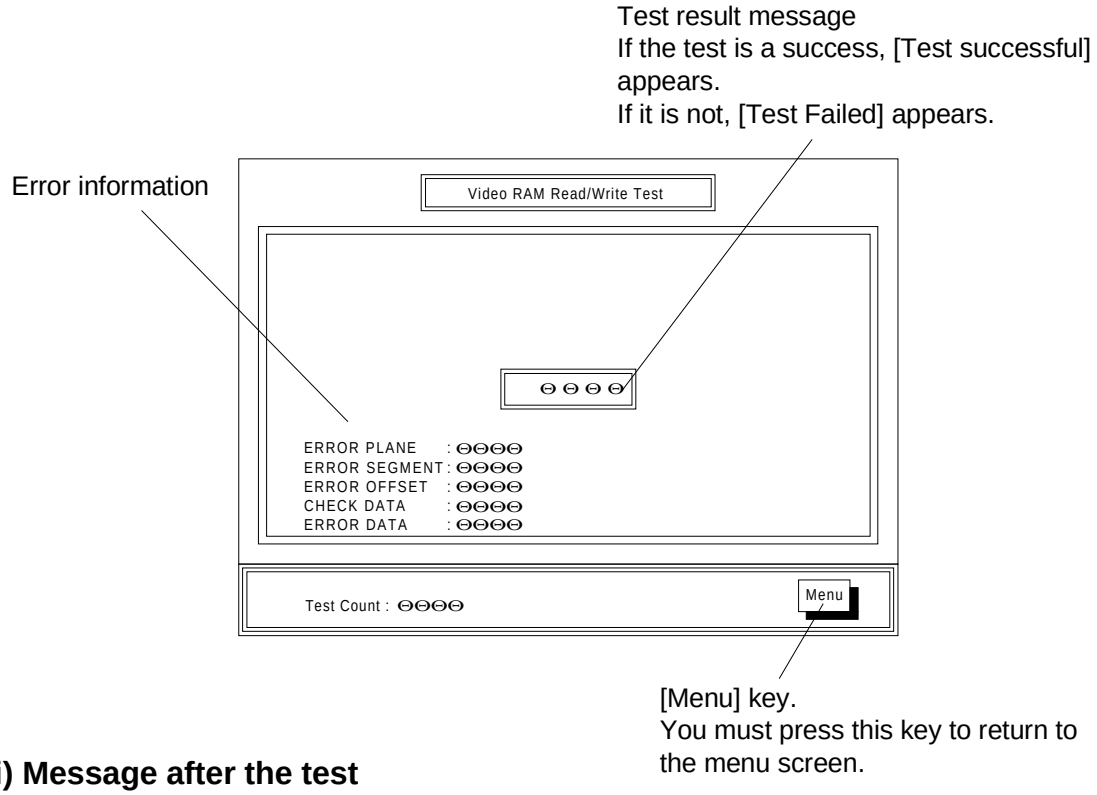
- The system displays the error message and [Menu].
  You must press [Menu] to return to the menu screen.

Trouble-shooting

3.4.3 Video RAM read/write test

NOTE: Vertical stripes (due to test data) appear on the LCD screen while the test is running. This should be considered normal.


Diagnostic test (title)
Message indicating that the test is currently under way
Video RAM Read/Write Test
Testing ...
Test Count : 0000
End
Number of times the system repeats the test (for the continuous mode)
[End] key.
Pressing this key terminates the test (for the continuous mode).


Test result message
If the test is a success, [Test successful] appears.
If it is not, [Test Failed] appears.
Error information
Video RAM Read/Write Test
ERROR PLANE : ΘΘΘΘ
ERROR SEGMENT : ΘΘΘΘ
ERROR OFFSET : ΘΘΘΘ
CHECK DATA : ΘΘΘΘ
ERROR DATA : ΘΘΘΘ
Test Count : ΘΘΘΘ
Menu
[Menu] key.
You must press this key to return to the menu screen.

(i) Message after the test

(a) If the test is successful:

- [Test Successful] appears at the center of the screen.

(b) If the test is unsuccessful:

- [Test Failed] appears at the center of the screen.
- Error information appears at the lower left-hand corner of the screen.

Remarks: Error information

Error plane	Memory bank at switching time
Error segment	Segment (A000h or B000h) is displayed.
Error offset	A value from 0000h through FFFFh is displayed.
Check data	Value written at test execution time
Error data	Value read from the same position that was written into

(ii) Processing after the test

(a) If the test is successful:

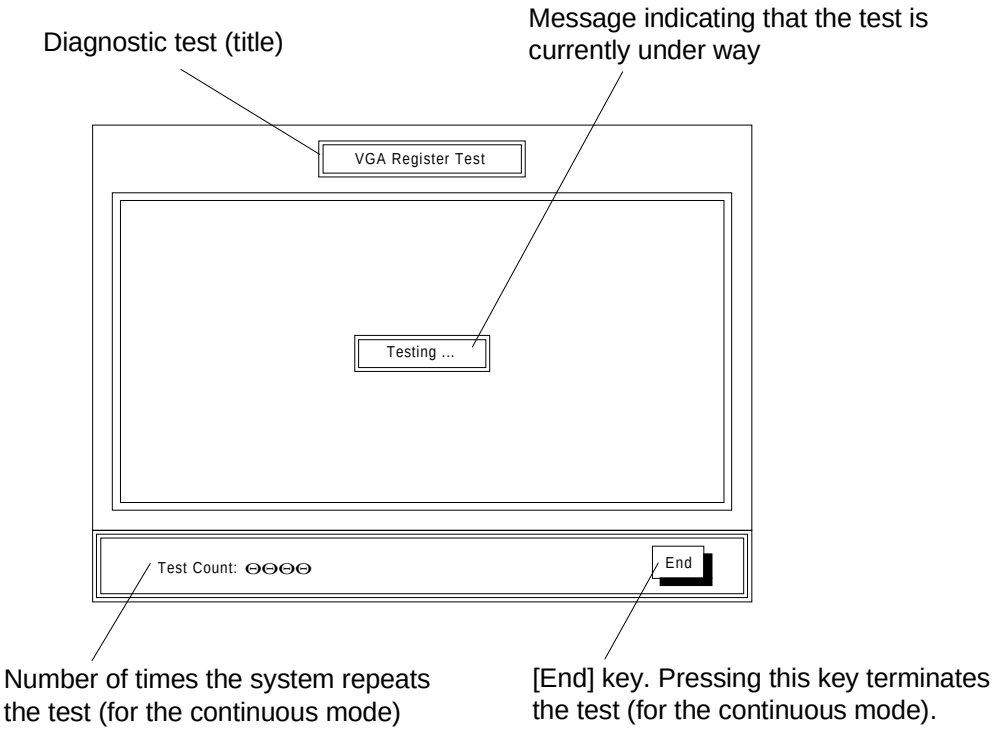
- Test mode: The system executes the next test.
- Continuous mode: The system repeats the same test.
- Execution mode: The system displays [Menu].
  You must press [Menu] to return to the menu screen.

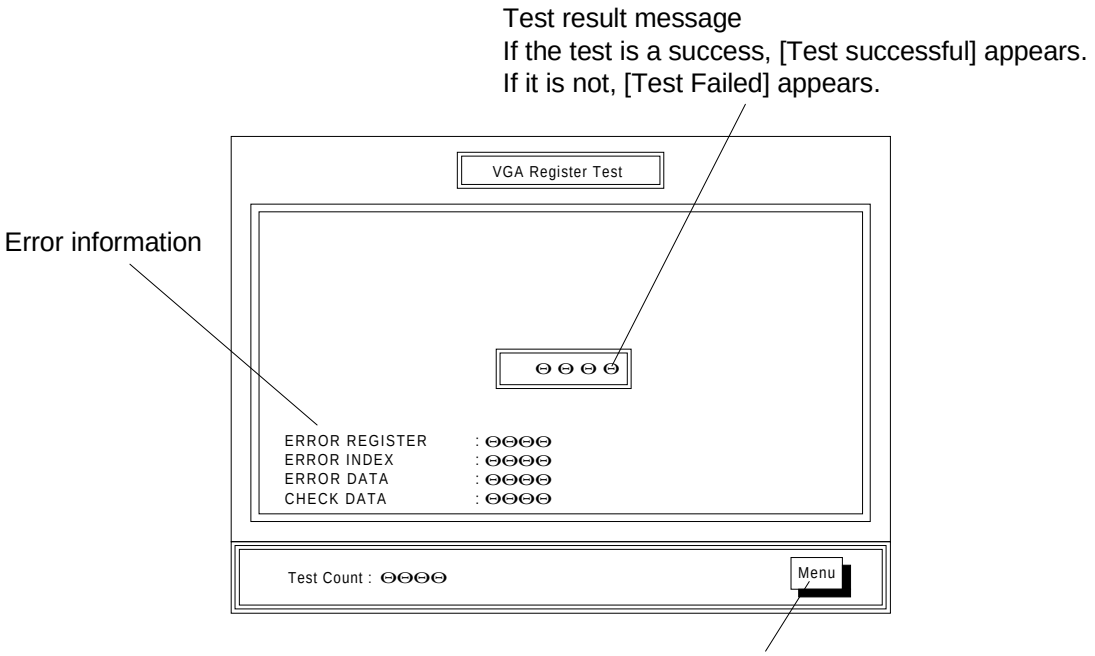
(b) If the test is unsuccessful:

- The system displays the error message and [Menu].
  You must press [Menu] to return to the menu screen.

3.4.4 VGA test

NOTE: The image on the LCD screen blurs for a moment while the test is running. This should be considered normal.


Diagnostic test (title)
Message indicating that the test is currently under way
VGA Register Test
Testing ...
Test Count: 0000
End
Number of times the system repeats the test (for the continuous mode)
[End] key. Pressing this key terminates the test (for the continuous mode).


Test result message
If the test is a success, [Test successful] appears.
If it is not, [Test Failed] appears.
VGA Register Test
Error information
ERROR REGISTER : ΘΘΘΘ
ERROR INDEX : ΘΘΘΘ
ERROR DATA : ΘΘΘΘ
CHECK DATA : ΘΘΘΘ
Test Count : ΘΘΘΘ
Menu
[Menu] key.
You must press this key to return to the menu screen.

(i) Message after the test

(a) If the test is successful:

- [Test Successful] appears at the center of the screen.

(b) If the test is unsuccessful:

- [Test Failed] appears at the center of the screen.
- Error information appears at the lower left-hand corner of the screen.

Remarks: Error information

Error register	Register address is displayed.
Error index	Index for the register where an error occurred is displayed.
Check data	Value set in the register is displayed.
Error data	Read value is displayed.

(ii) Processing after the test

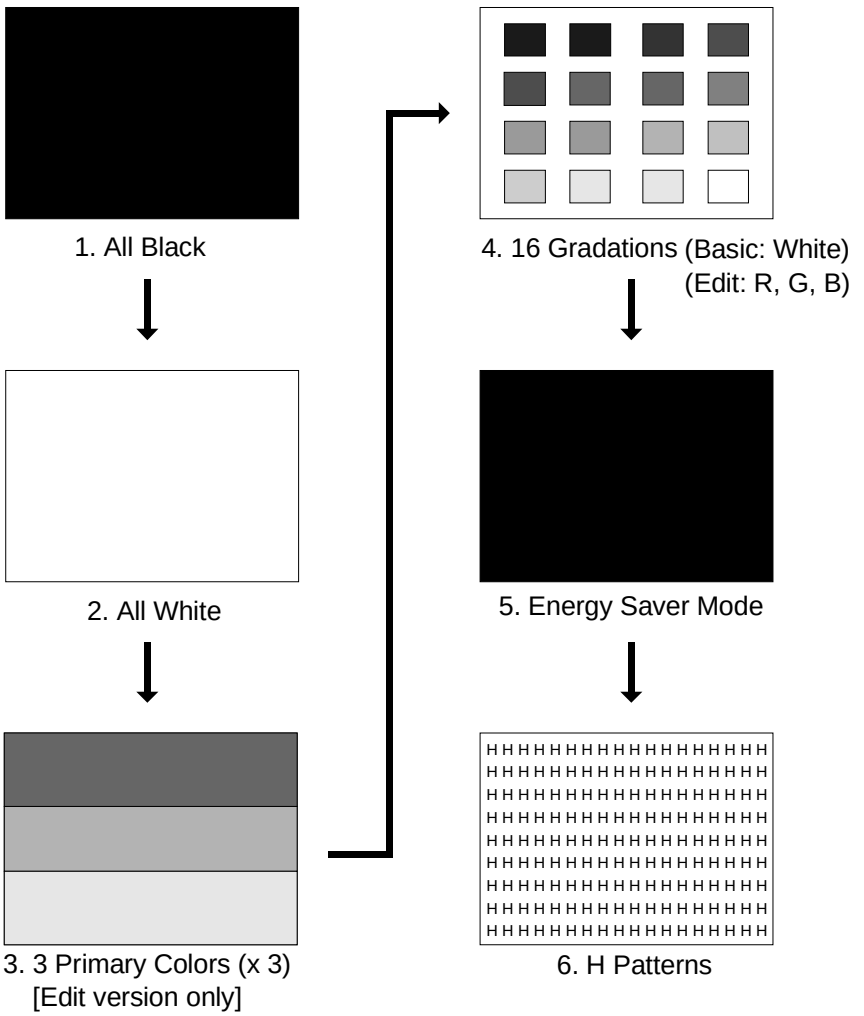
(a) If the test is successful:

- Test mode: The system executes the next test.
- Continuous mode: The system repeats the same test.
- Execution mode: The system displays [Menu].
  You must press [Menu] to return to the menu screen.

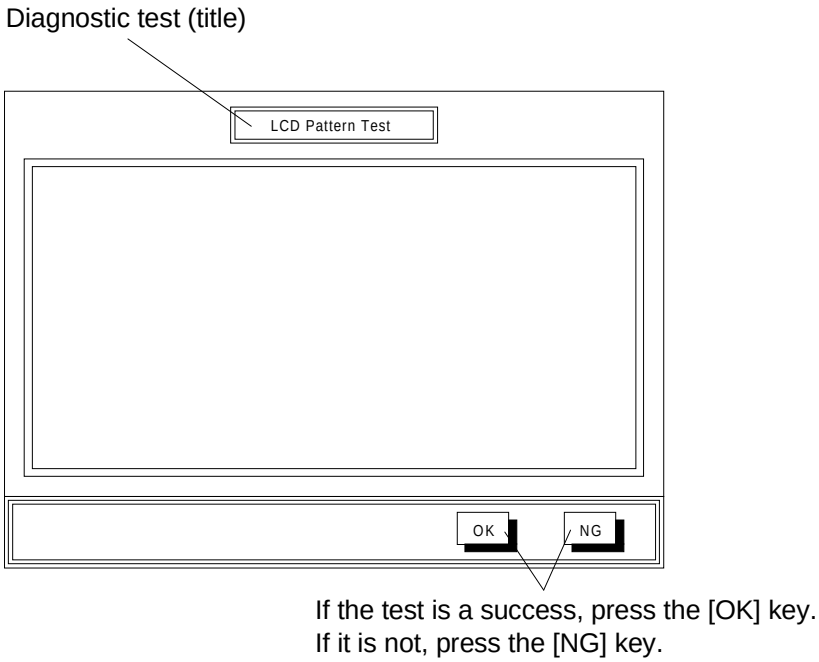
(b) If the test is unsuccessful:

- The system displays the error message and [Menu].
  You must press [Menu] to return to the menu screen.

3.4.5 LCD pattern test



(i) Press any point on the LCD to display the above patterns in order:



(ii) Processing after the test

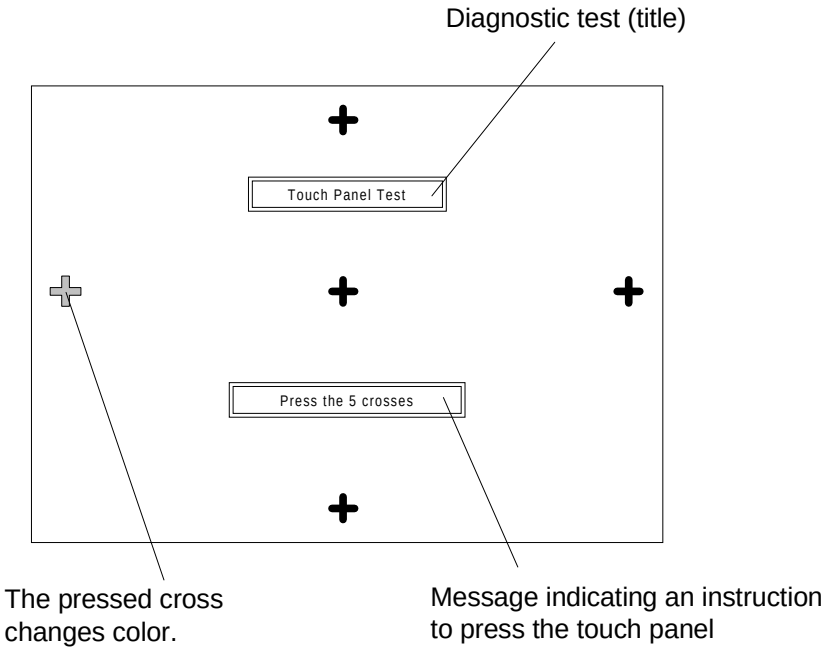
(a) If you press the [OK] area:

- Test mode: The system executes the next test.
- Execution mode: The system displays [Menu].
  You must press [Menu] to return to the menu screen.

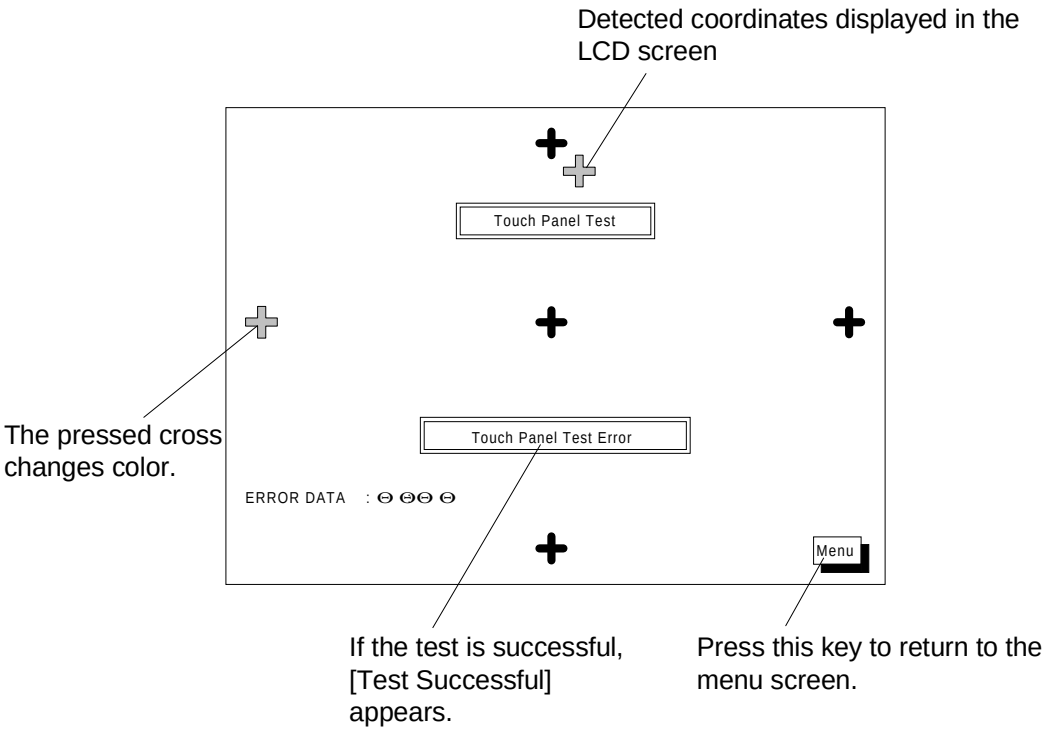
(b) If you press the [NG] area:

- The system displays [Menu].
  You must press [Menu] to return to the menu screen.

3.4.6 Touch panel test


Diagnostic test (title)
Touch Panel Test
Press the 5 crosses
The pressed cross changes color.
Message indicating an instruction to press the touch panel

(i) Pressing a cross changes the color of the cross.


Detected coordinates displayed in the LCD screen
Touch Panel Test
The pressed cross changes color.
Touch Panel Test Error
ERROR DATA : Θ ΘΘ Θ
Menu
If the test is successful, [Test Successful] appears.
Press this key to return to the menu screen.

(ii) Message after the test

(a) If the test is successful:
- [Test Successful] appears at the center of the screen.

(b) If the test is unsuccessful:
- [Touch Panel Test Error] appears at the center of the screen.
- Error information appears at the lower left-hand corner of the screen.

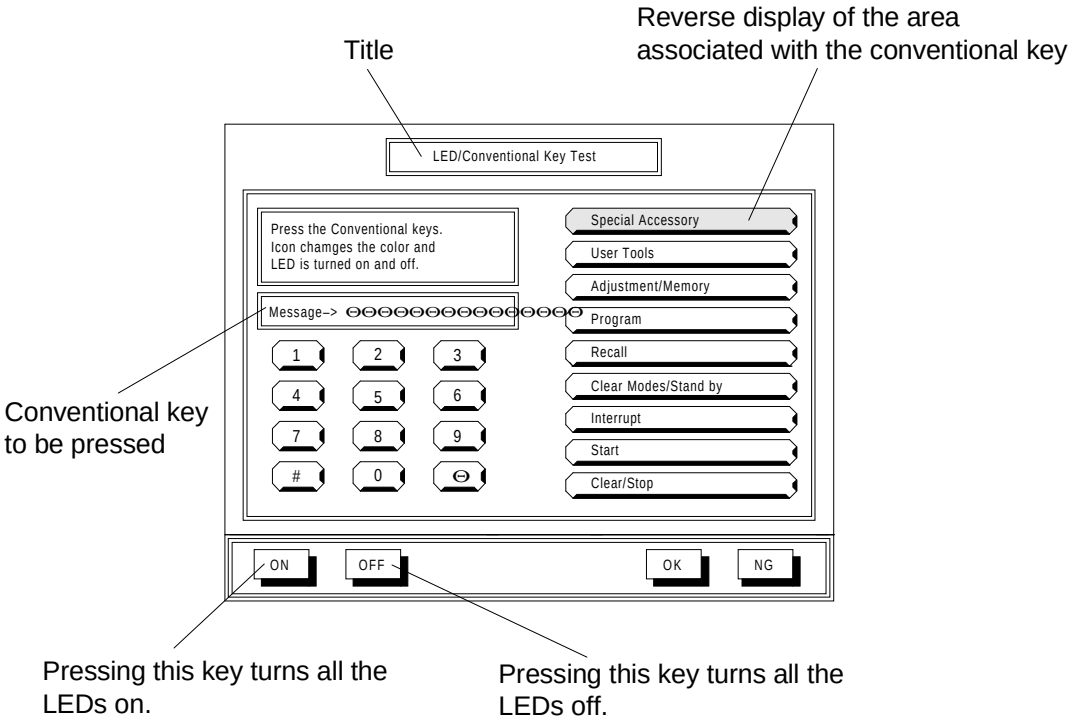
Remarks: Error information is as follows.
- Error data (detected coordinates (X, Y))

(iii) Processing after the test

(a) If the test is successful:
- Test mode: The system executes the next test.
- Execution mode: The system displays [Menu].
  You must press [Menu] to return to the menu screen.

(b) If the test is unsuccessful:
- The system displays [Menu].
  You must press [Menu] to return to the menu screen.

3.4.7 LED/Conventional key test



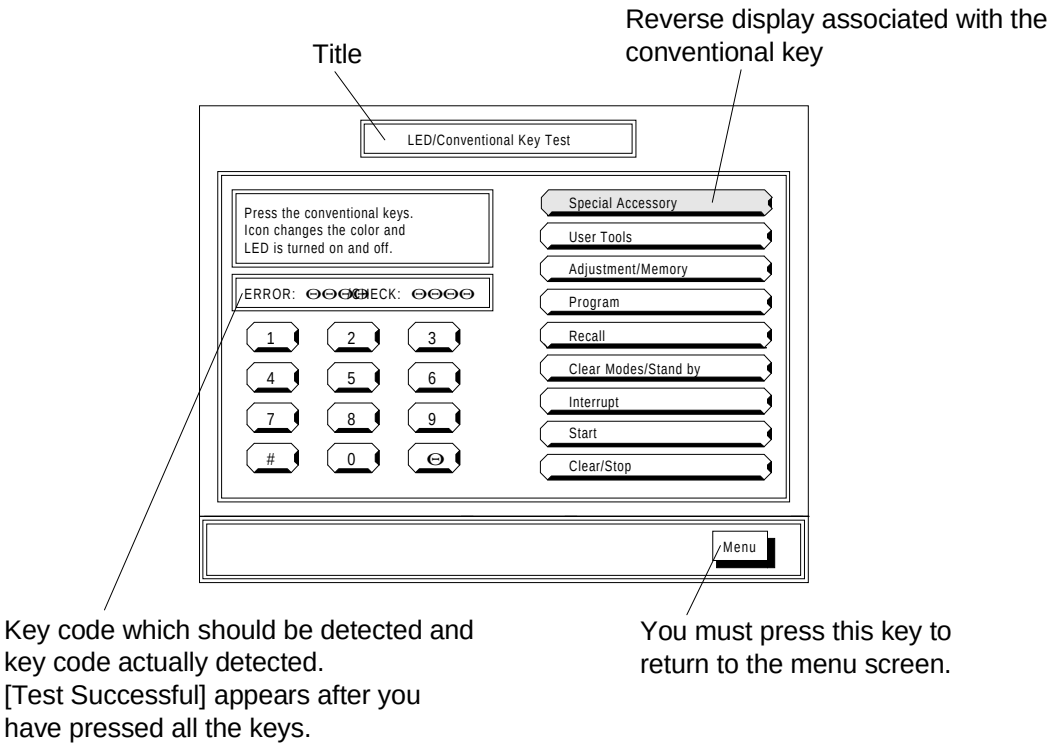
(i) Pressing a conventional key causes the events shown below.

1. The buzzer sounds.
2. The associated LED lights (it goes out when you press the key again).
3. The associated LCD area changes color.

(ii) Pressing a touch panel key also causes the event shown below.

[ON]: Turns all the LEDs on.
[OFF]: Turns all the LEDs off.
[OK]: Terminates the test.
[NG]: Terminates the test.

NOTE: If you do not press the conventional key shown in the [MSG:] area, an error occurs. (Pressing the same key again will not cause an error.)



(iii) Processing after the test:

(a) If the test is successful:

- The system displays [Test Successful] in the [MSG:] display area.
- Test mode: The system executes the next test.
- Execution mode: The system displays [Menu].
  You must press [Menu] to return to the menu screen.

(b) If the test is unsuccessful:

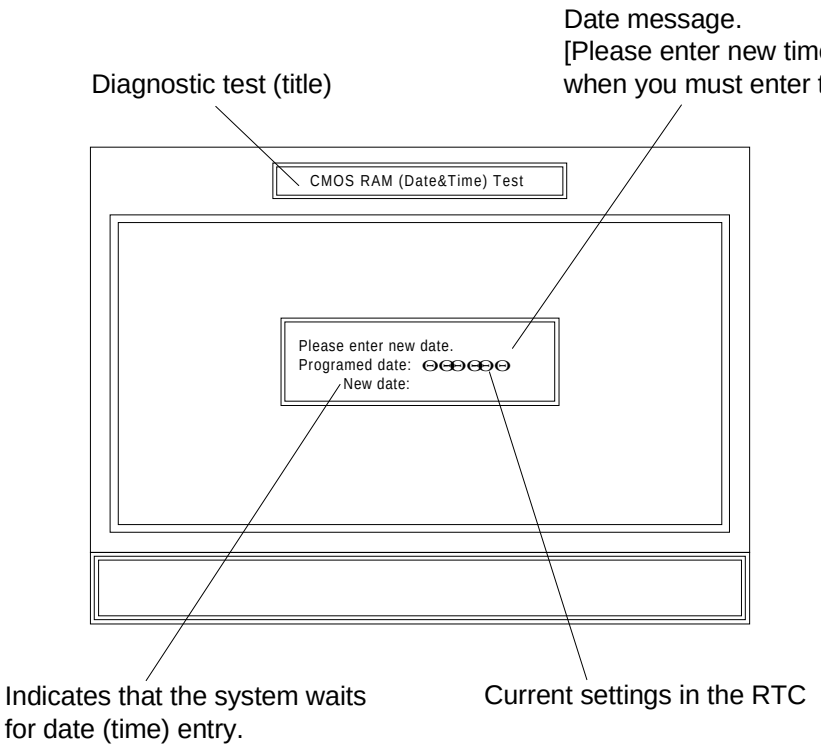
- The system displays error information in the [MSG:] display area.

Error information:

[MSG: ✶✶✶✶ (Key code to be checked): ✶✶✶✶ (Key code detected)]

The system displays [Menu] after the test. You must press [Menu] to return to the menu screen.

3.4.8 (8) CMOS RAM test



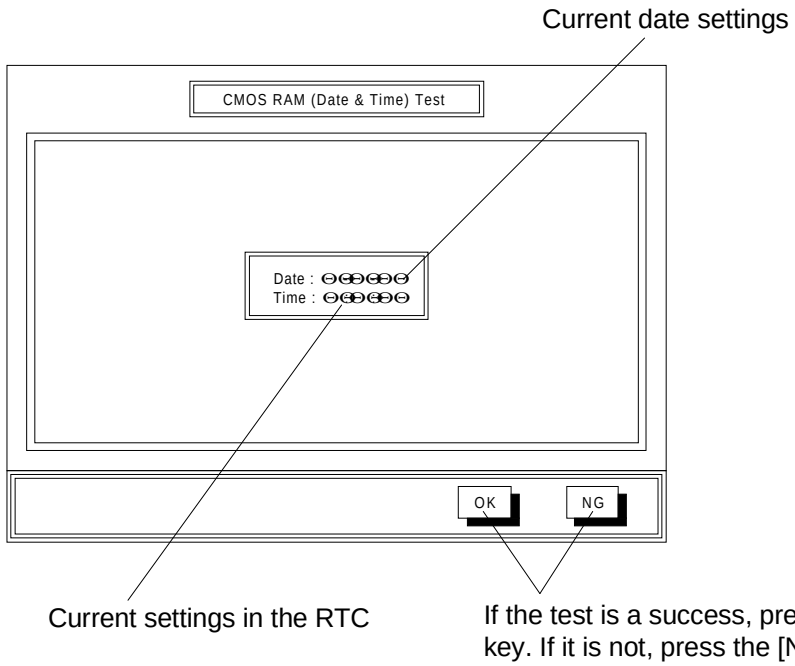
(i) Enter the date and time data with the Number keys (conventional keys).

NOTE: You can re-enter data with the Clear/Stop key.
If entering the new date or time is unnecessary, press Start key to go to the next screen

Example:

Entering the date (December 31, 1999) and time (23:59:55).

1. The system displays [Please enter new date].
2. Press the keys in the following order: "9", "9", "1", "2", "3", "1", and Start
3. The machine displays [Please enter new time].
4. Press the keys in the following order: "2", "3", "6" (wrong entry), Clear/Stop, "2", "3", "5", "9", "5", "5", and Start
5. The machine displays the settings.


Current date settings
CMOS RAM (Date & Time) Test
Date :
Time :
OK
NG
Current settings in the RTC
If the test is a success, press the [OK] key. If it is not, press the [NG] key.

(ii) Test execution

- If the clock operation is normal, press [OK].

(iii) Processing after the test

The following shows what the system does after the test.

(a) If you press [OK]:

- Test mode: The system executes the next test.
- Execution mode: The system displays [Menu].
  You must press [Menu] to return to the menu screen.

(b) If you press [NG]:

- The system displays [Menu]. You must press [Menu] to return to the menu screen.

NOTE: The system does not support the continuous mode for the CMOS RAM test. It can only perform this test once in the execution or test mode.

4. PROBLEMS DETECTED AT TESTS AND SUSPECTED UNITS

(1) Problems detected at initial startup (power-on)

Problem	Cause	Suspected unit
LCD shows nothing.	LCD drive voltage is abnormal.	Operation control unit Op-ports 1 and 2
	Back-light is too dark.	Op-ports 1 and 2
	Control signal to the LCD is abnormal.	Operation control unit
Diagnostic program is not started ("Please wait" is displayed).	Start key detection is abnormal.	Op-ports 1 and 2
		Operation control unit

(2) Problems detected at initialization (point accuracy calibration)

Problem	Cause	Suspected unit
Pressing down on the touch panel does not provide reverse display.	Touch panel connector is defective.	Op-ports 1 and 2
	Analog voltage is not detected.	Op-ports 1 and 2
	Touch panel is defective.	Touch panel
	A/D detecting section is abnormal.	Operation control unit
	Detected data cannot be obtained.	Operation control unit
NVRAM abnormality message is displayed (when calibration is skipped).	Point accuracy data for back-up is cleared from NVRAM.	ROM board

(3) Problems detected in self-diagnostic mode

Problem	Cause	Suspected unit
Display is abnormal.	LCD is defective.	LCD
	Specified plotting data cannot be written into video RAM.	Operation control unit
Menu cannot be selected.	Interrupt signal from the touch panel cannot be detected.	Operation control unit

(4) Problems detected at the main RAM test

Problem	Cause	Suspected unit
Error message is displayed (at address C00000h or less) when the test is finished.	Written data is different from read data.	Operation control unit
Error message is displayed (at address C00000h or less) when the test is finished.	Written data is different from read data.	ROM board

(5) Problems detected at the system RAM test

Problem	Cause	Suspected unit
Error message is displayed when the test is finished.	ROM board is defective.	ROM board

(6) Problems detected at the video RAM test

Problem	Cause	Suspected unit
Error message is displayed when the test is finished.	Video RAM is defective.	Operation control unit

(7) Problems detected at the VGA RAM test

Problem	Cause	Suspected unit
Error message is displayed when the test is finished.	VGA chip and peripheral buses are defective.	Operation control unit

(8) Problems detected at the LCD pattern test

Problem	Cause	Suspected unit
LCD test pattern is abnormal.	VGA chip and control signals to the LCD are abnormal.	Operation control unit
	LCD is defective (there are dots missing, etc.).	LCD
Back-light is out of control (always ON).	Inverter is defective.	Op-ports 1 and 2
	Back-light control signal is abnormal.	Operation control unit

(9) Problems detected at the touch panel test

Problem	Cause	Suspected unit
LCD shows an error message.	Touch panel has low detection accuracy.	Op-ports 1 and 2

(10)Problems detected at the LED/Conventional key test

Problem	Cause	Suspected unit
LCD shows an error message.	Abnormal signal is detected when a key is pressed.	Op-ports 1 and 2
Reverse display is not obtained although a key is pressed.	Signal line for key data is broken, or the switch is damaged.	Operation control unit
LED does not light.	LED is damaged.	Op-ports 1 and 2
	Control signal line from the LED controller to the LED is broken.	Operation control unit
Buzzer does not sound.	Piezoelectric buzzer is damaged.	Op-ports 1 and 2
	Control signal line is broken.	Op-ports 1 and 2
	Controller is abnormal.	Operation control unit

(11) Problems detected at the CMOS RAM test

Problem	Cause	Suspected unit
Operation based on the date and time settings is abnormal.	CMOS RAM is abnormal.	Operation control unit
Time settings are cleared.	R.T.C. backup is abnormal.	Operation control unit

(12) End processing

Problem	Cause	Suspected unit
[System will be reset] remains displayed.	The system cannot be reset.	Operation control unit

SORTER
(Machine Code: A322)

1. SPECIFICATION

Paper Size for Bins:	Maximum: A3 (lengthwise) or 11" x 17" (lengthwise) Minimum: A5 (sideways) or 5 1/2" x 8 1/2" (sideways and lengthwise)
Copy Paper Weight:	50 - 90 g/m^2 or 14 - 24 lb
Number of Bins:	15 bins + interruption bin (total 16 bins)
Bin Capacity:	Sort mode: 50 sheets/bin (A4 or 8 1/2" x 11") Stack mode: 40 sheets/bin (A4 or 8 1/2" x 11")
Top Bin Capacity:	150 sheets (A4 or 8 1/2" x 11")
Print Bin Capacity:	40 sheets/bin (80 g/m^2 or 20 lb
Interrupt Bin Capacity:	100 sheets (A4 or 8 1/2" x 11")
Power Source:	DC 24V from the copier
Power Consumption:	0.03 kW
Dimensions (W x D x H):	499 x 535 x 600 mm 19.6" x 21.1" x 23.6"
Weight:	22 kg, 48.5 lb
Interface Requirement:	A sorter adapter is needed.

2. MAJOR DIFFERENCES FROM THE BASE COPIER'S SORTER (A511)

- The number of bins has been changed. (Requests from the field.)

Sorter for This Machine	Sorter for Base Copier
15 bins + interruption bin	10 bins + interruption bin + print bin

- The exterior color has been changed. (New corporate identity color)

FILM PROJECTOR UNIT

(Machine Code: A718)

1. SPECIFICATION

Acceptable Film Types:	• Type: Positive film/Negative film • Size: 35 mm - Approx. 140 x 210 mm Others: 45 x 60 mm, 60 x 60 mm, 60 x 70 mm, 60 x 80 mm, 60 x 90 mm, 4" x 5" Max: 142 x 210 mm or 5.6" x 8.2" • Mount: Yes (Up to 5 frames can be set in the film holder.) • Strip: Yes (A series of 6 frames can be set in the film holder.)
Focusing:	Fixed/Manual
Effective Film Area:	• 35 mm: Approx. 21.5 x 33.0 mm • Other Sizes: Full Size
Projection Ratio	• 35 mm: Approx. x 6 • Other Sizes: x 1
Copy Image Size	• 35 mm mount: 120.8 x 192.7 mm • 35 mm strip: 129.3 x 198.6 mm • Other Sizes: Full Size

All the reproduction features of the copier are available.

Power Source:	115 V 60 Hz, more than 1.0 A 220 ~ 240 V 50/60 Hz, more than 0.6 A
Power Consumption:	Maximum: less than 185 VA
Dimensions (W x D x H):	Projector: 300 x 442 x 212 mm 11.8" x 17.4" x 8.35" Mirror Unit: 298 x 232 x 50 mm 11.73" x 9.13" x 1.97"
Weight:	11 kg or 24.3 lb

Remarks: The holder is required for installation.

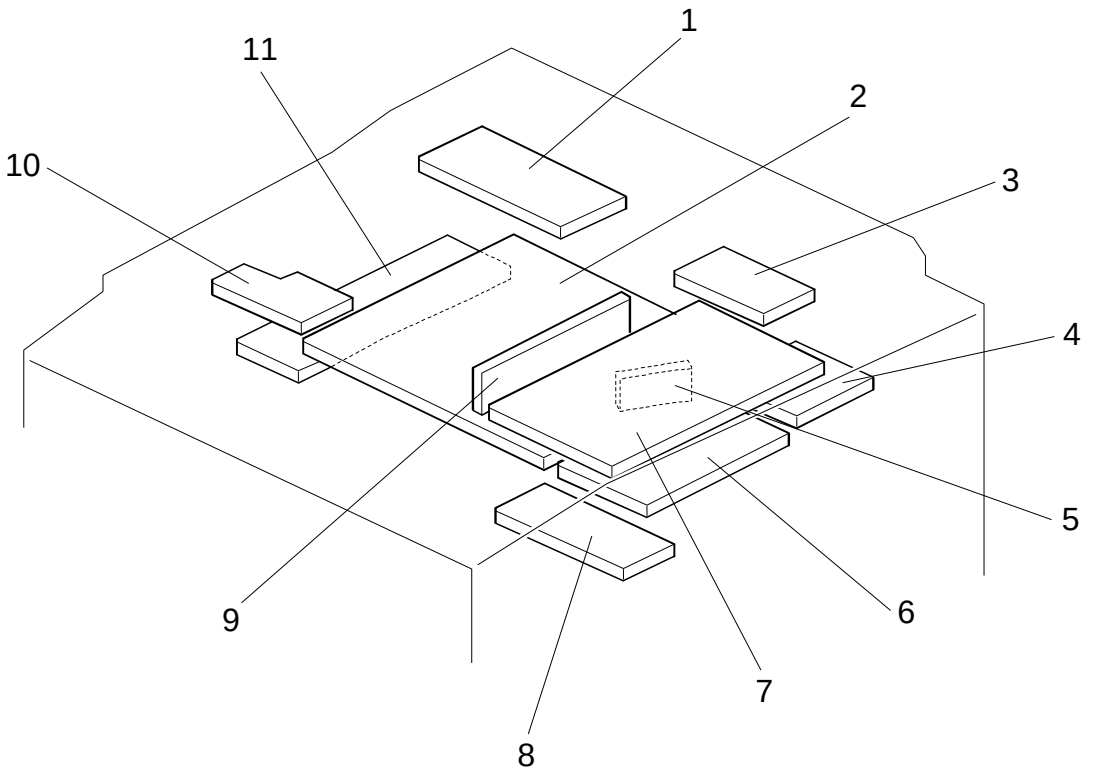
2. MAJOR DIFFERENCES FROM THE BASE COPIER'S FILM PROJECTOR (A998)

Enhancements for this FPU	Purpose
The projector lamp light intensity has been increased.	To improve the reproduction.
The material of the transparent parts of the film strip/slide holders have been changed.	To improve the holders concerning attracting dust particles, and reduce the appearance of Newton ring patterns on copies.
The material of the guard unit has been changed.	To reduce the attraction of dust particles to the guard unit.
The height of the guard unit when placed on the exposure glass has been changed.	To flatten a curled original (positive film) on the exposure glass more effectively.
The height adjustment procedure has been changed.	For easier servicing of the machine.

- The exterior color has been changed. (New corporate identity color)

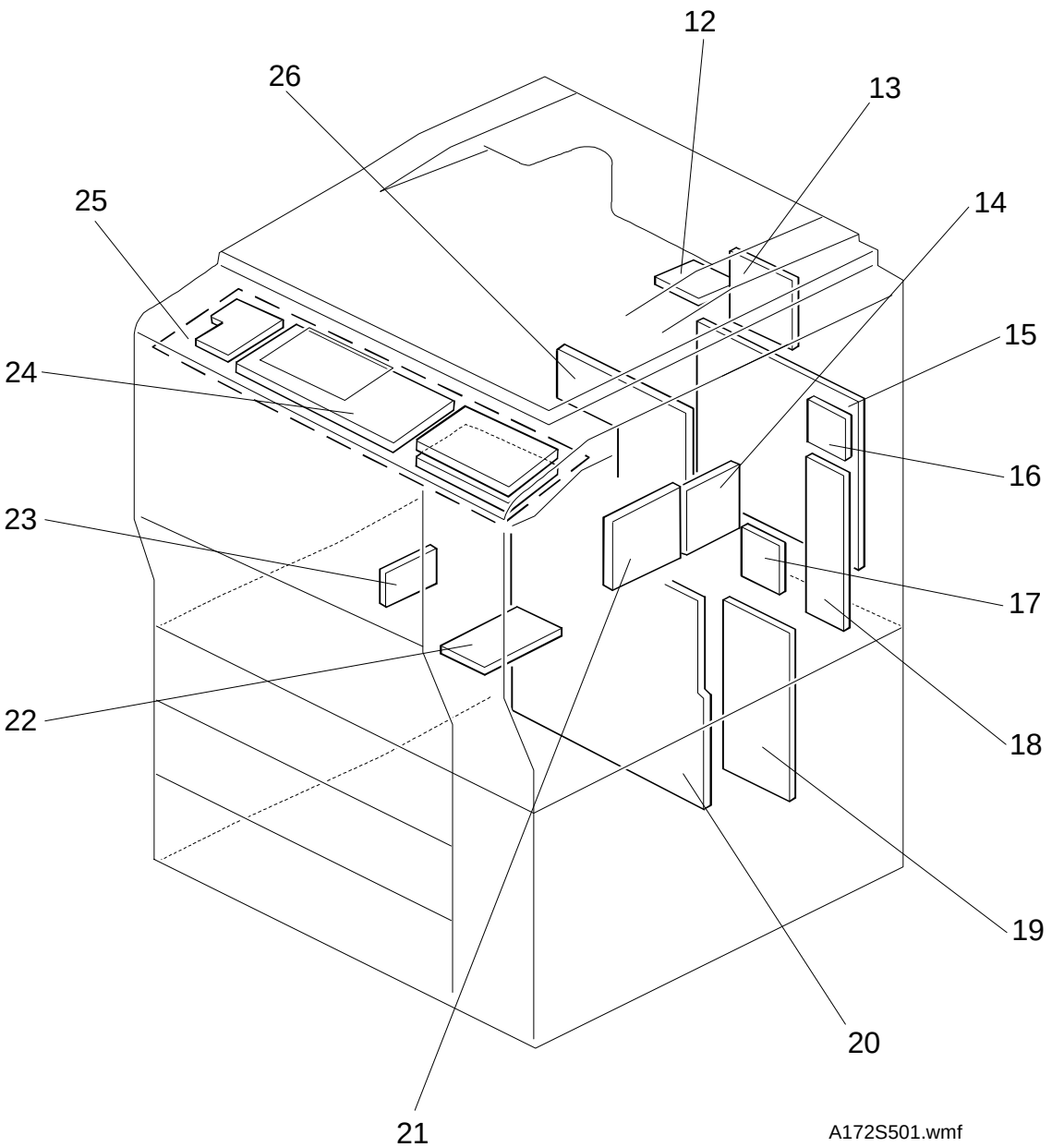
COPIER ELCTRICAL COMPONENT LAYOUT

[PCB'S-1]

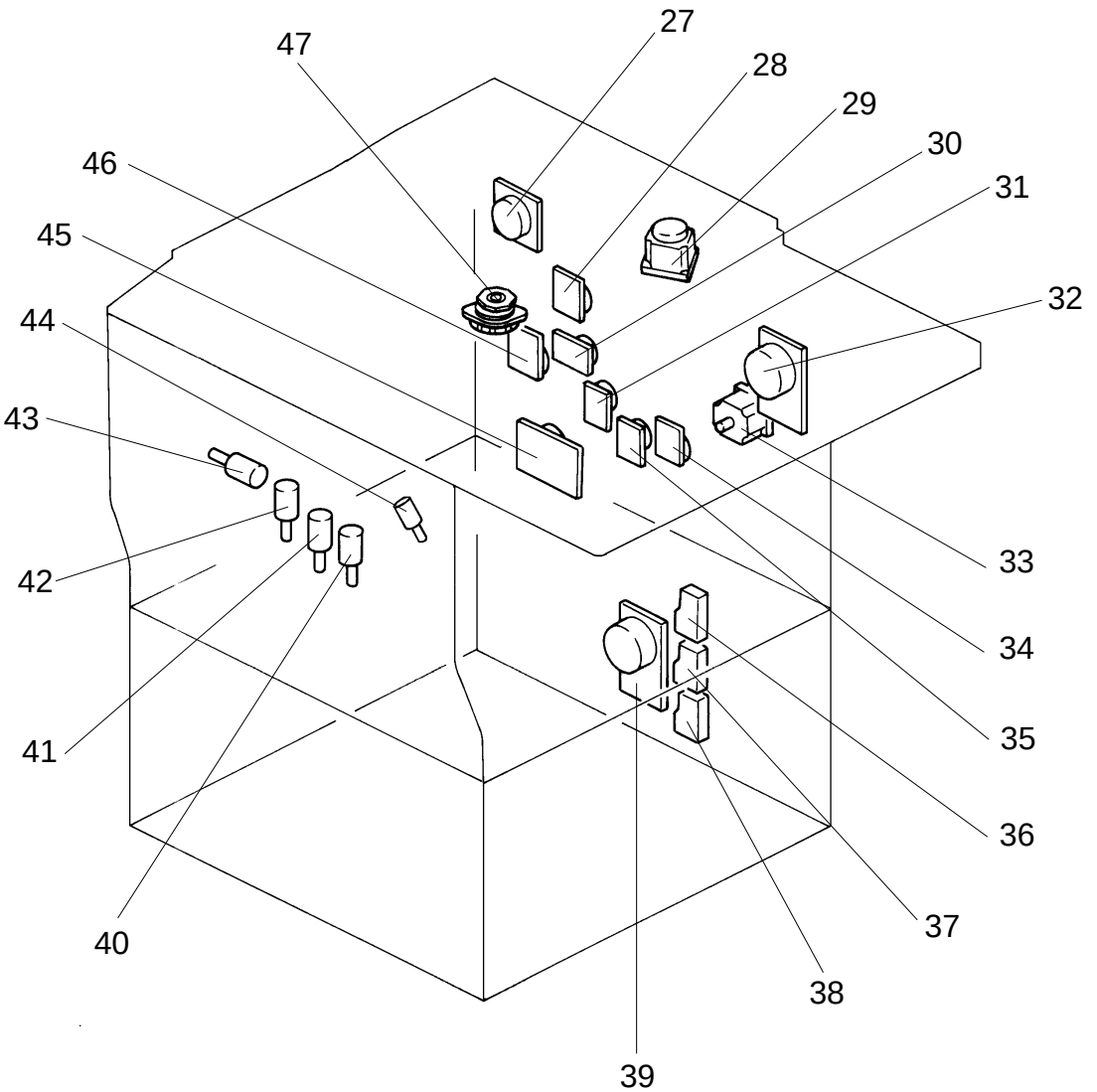


A172S500.wmf

[PCB'S-2]

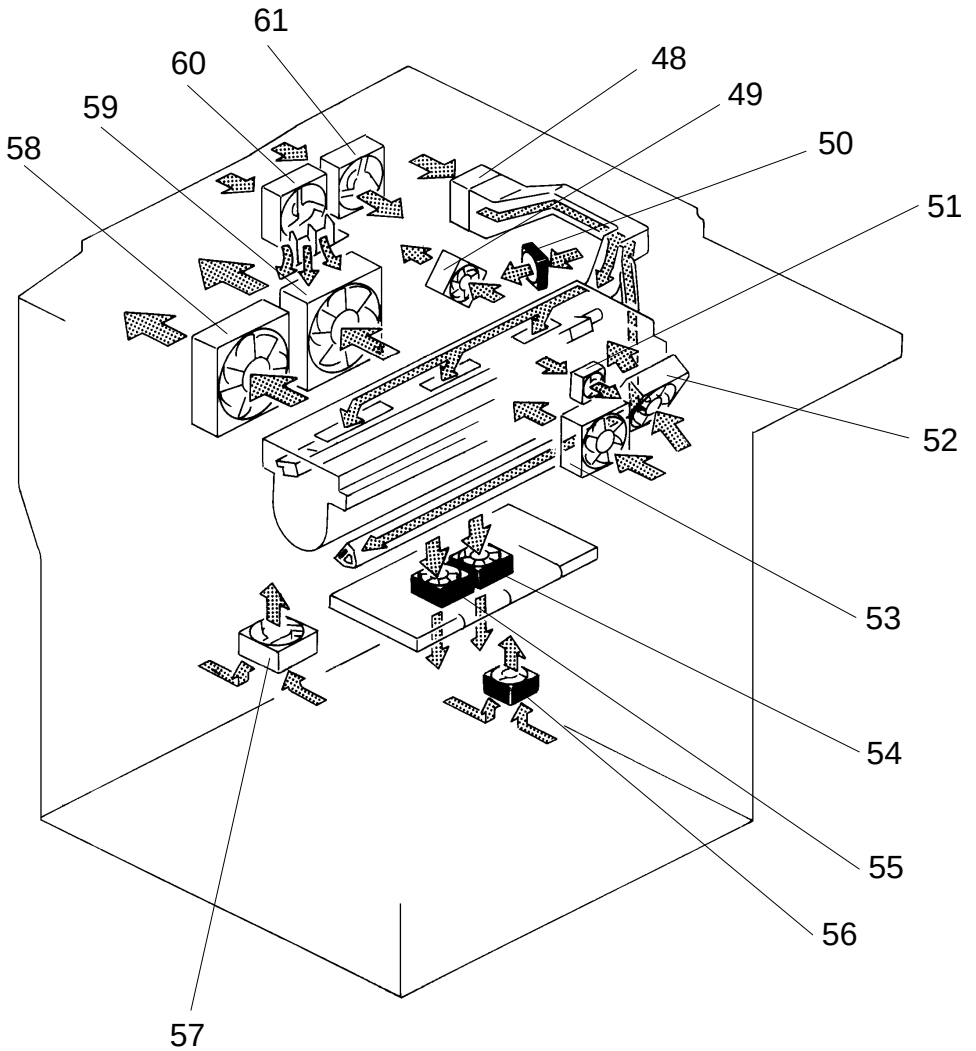


[MOTORS]



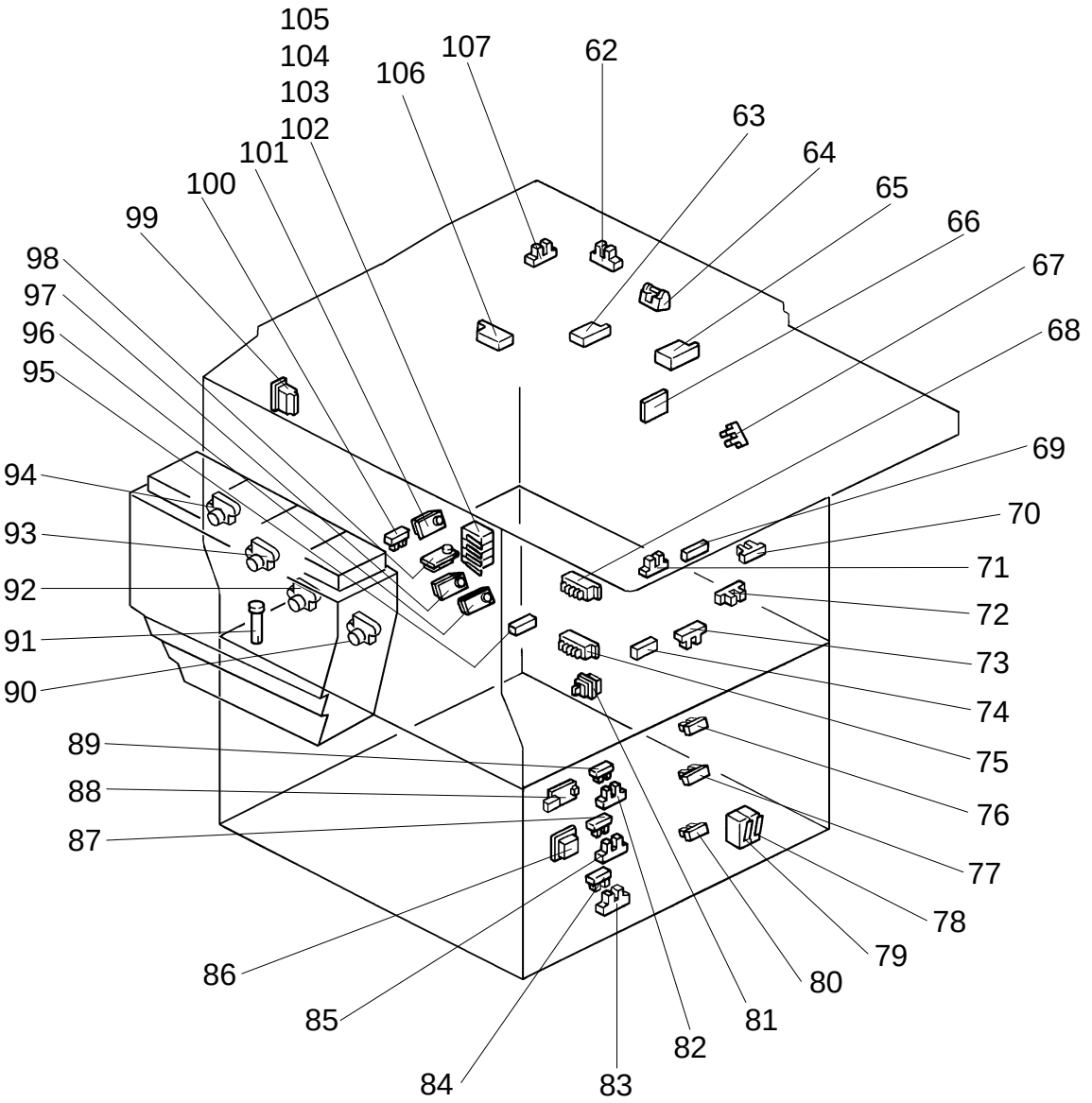
A172S502.img

[FANS]



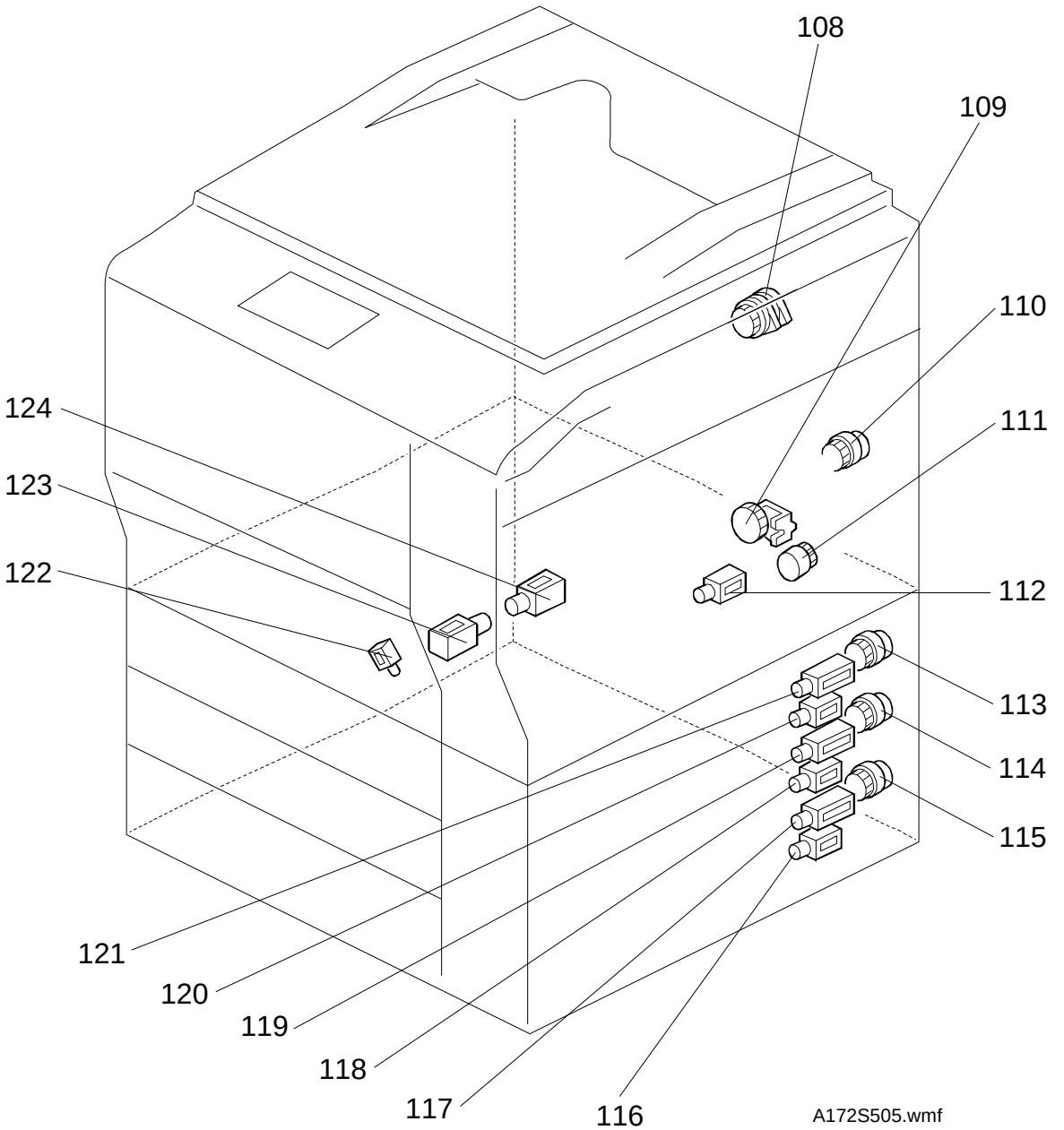
A172S503.img

[SENSORS & SWITCHES]

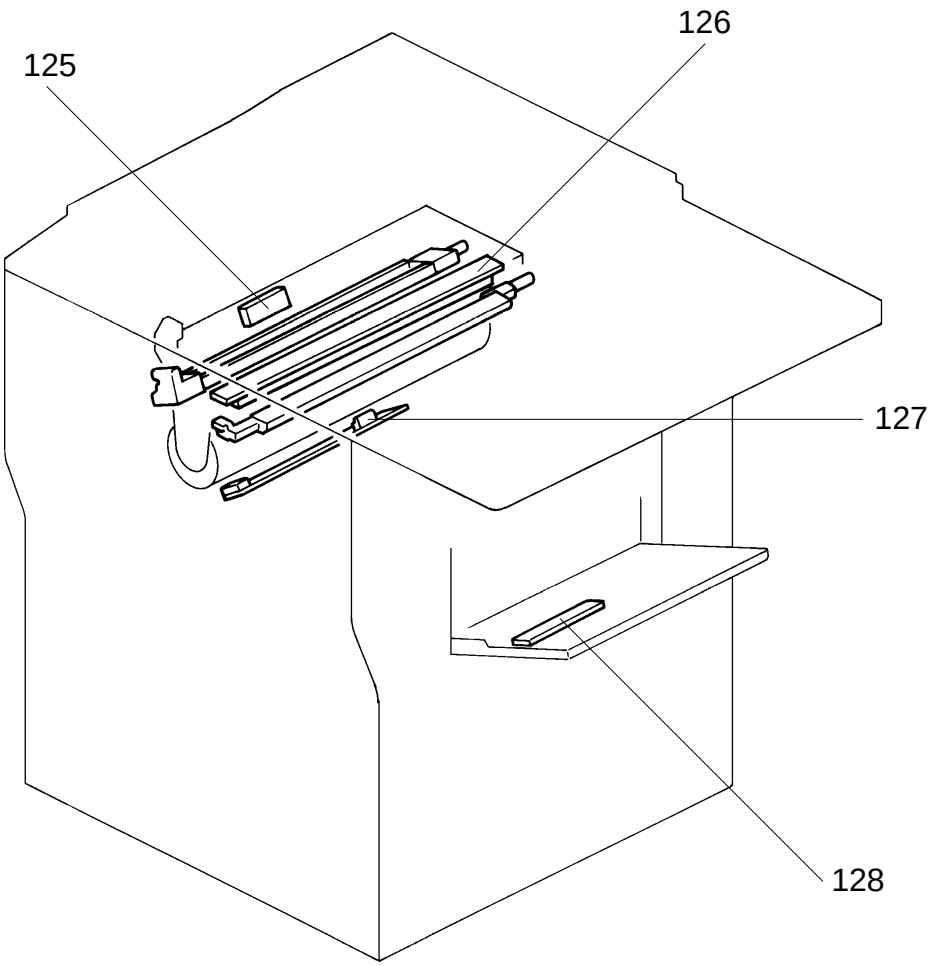


A172S504.img

[CLUTCHES & SOLENOIDS]

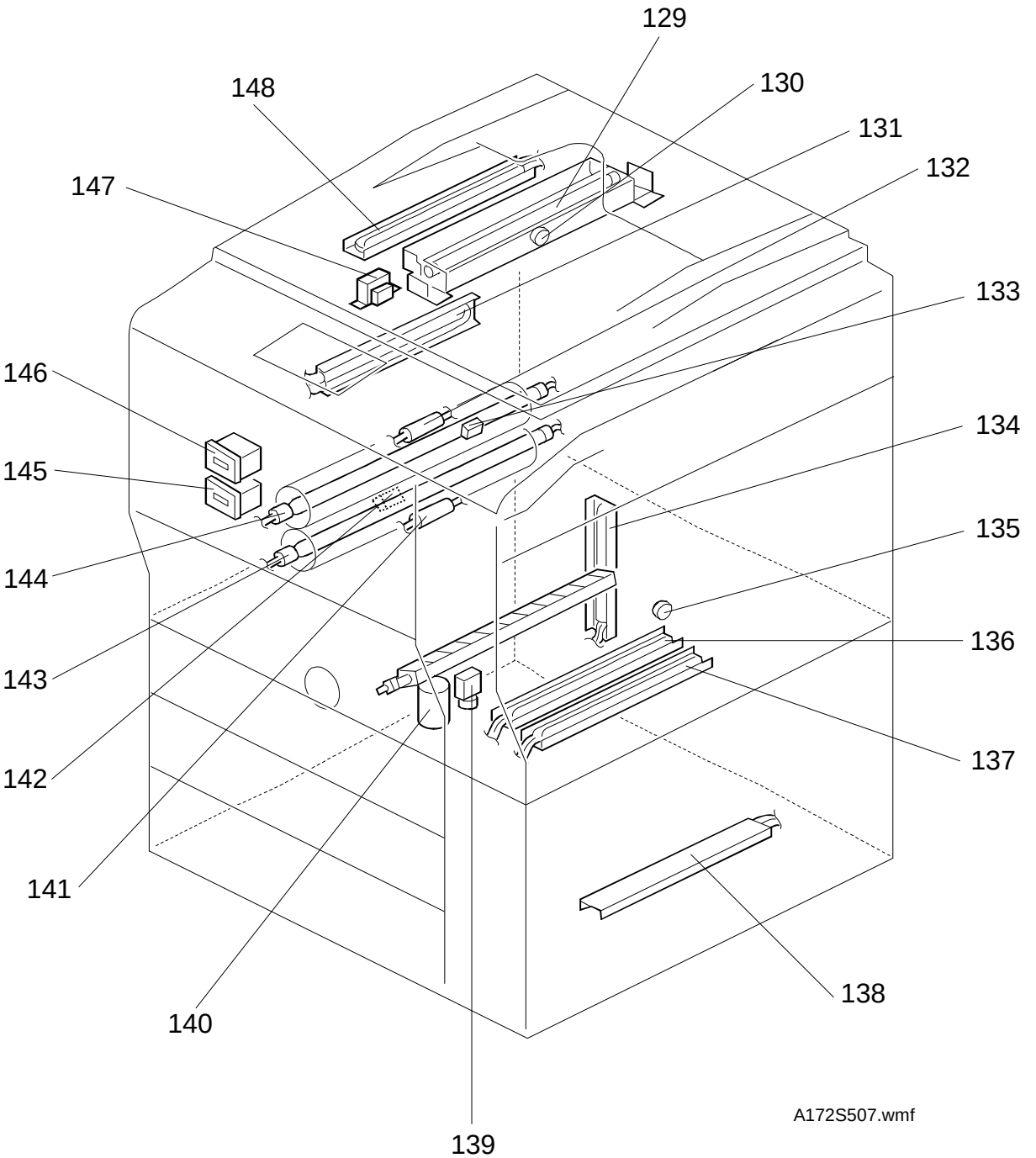


[OTHERS-1]

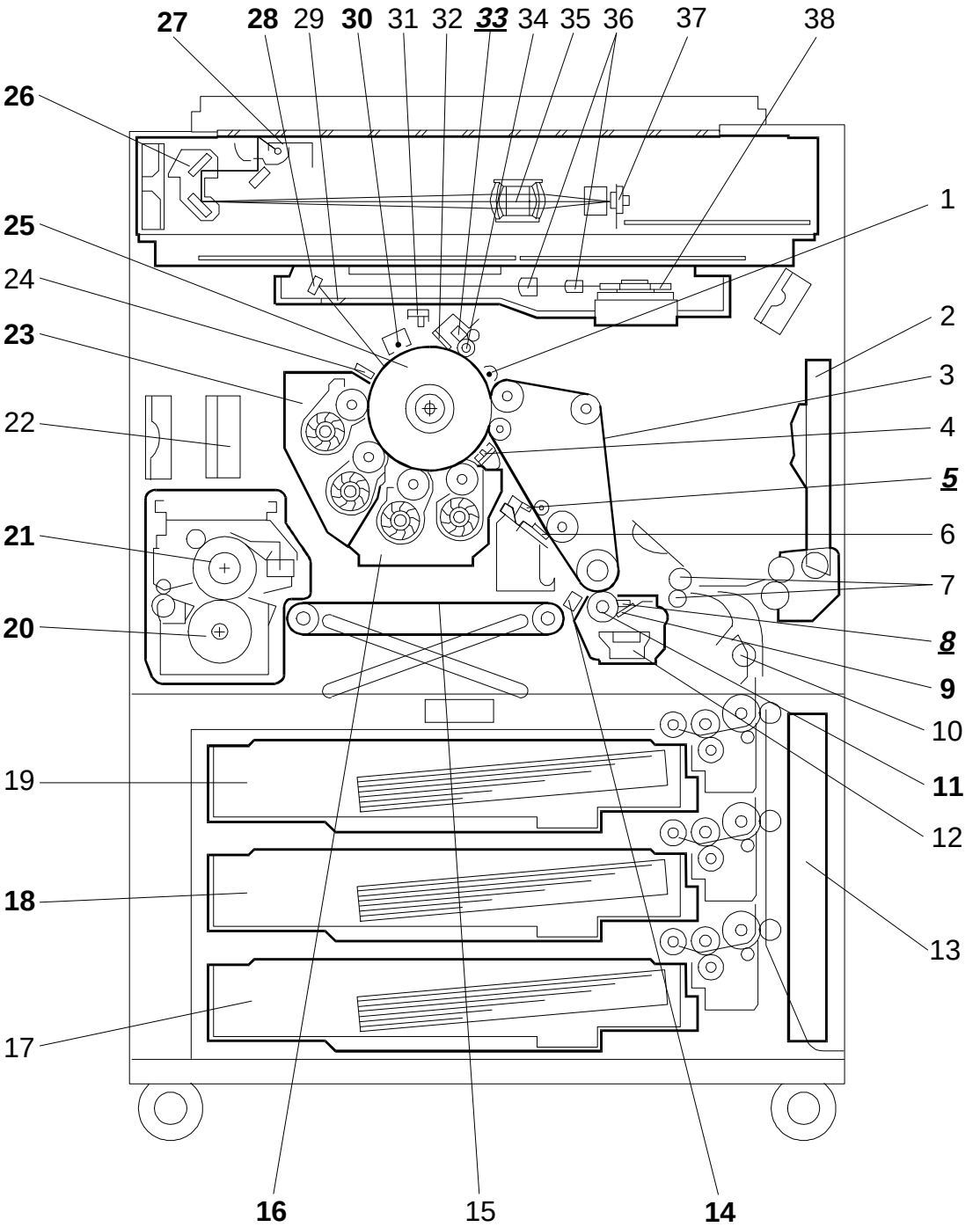


A172S506.img

[OTHERS-2]

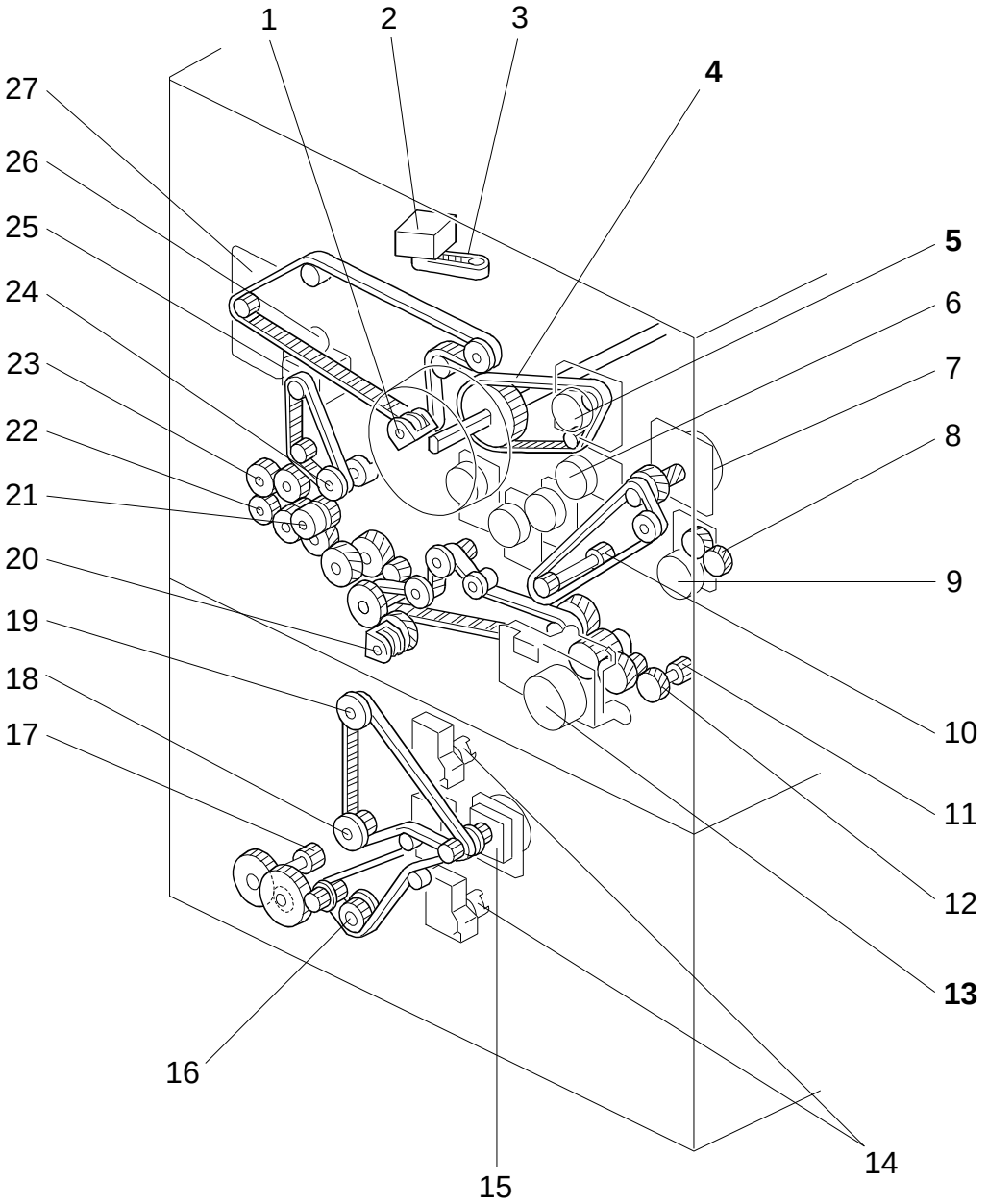

129
148
130
131
147
132
133
146
134
145
135
144
136
143
137
142
141
138
140
139
A172S507.wmf

[MECHANICAL COMPONENT LAYOUT]



Bold Italic : Additional units from A109
Bold : Modify units from A109

[DRIVE LAYOUT]



A172S509.wmf

Bold Italic : Additional units from A109
Bold : Modify units from A109

COPIER ELECTRICAL COMPONENTS

P = Printer
S = Scanner

Symbol	Name	Index No.	P-to-P	
Printed Circuit Boards				
PCB1	DC power supply	20	P	B3 to D3
PCB2	Lamp regulator	1	P	L11
PCB3	AC drive	11	P	A8 to A12
PCB4	High voltage supply to C/G	12	P	C16 to D15
PCB5	High voltage supply to B	26	P	G5
PCB6	High voltage supply to T1/PCC/BR	13	P	C15 to C16
PCB7	High voltage supply to T2	17	P	H7
PCB8	High voltage supply to D	22	P	J13 to K13
PCB9	Main control	15	P	E10 to J10
PCB10	Interface 1	21	P	A14 to K14
PCB11	Interface 2	18	P	B6 to L7
PCB12	Transfer belt motor drive	14	P	K10 to L10
PCB13	Paper feed interface	19	P	E3 to L3
PCB14	Noise filter	23	P	A3 to B3
PCB15	ID sensor	127	P	G13
PCB16	Operation panel	25	P	C5
PCB17	Polygon motor drive	8	P	F15 to F16
PCB18	CCD	9	S	D6 to G7
PCB19	Scanner control	7	S	A3 to K5
PCB20	Scanner drive	3	S	H6 to L7
PCB21	Image Discriminate	6	S	A14 to C15
PCB22	Display Editor interface	10	S	E10 to J12
PCB23	Operation Panel Control	24	P	G7 to H8
PCB24	IPU	2	P	E12 to J14
PCB25	IPU interface	4	P	A12 to D14
PCB26	LD drive	5	P	G16 to H16
PCB27	Laser synchronizing detector	66	P	I16
PCB28	Paper width detecting	128	P	K8 to L8
PCB29	Wire cleaner drive	16	P	G5 to H5
Motors				
M1	Bk to Development drive	46	P	J15 to J16
M2	C to Sleeve	31	P	D5
M3	M to Sleeve	35	P	E5
M4	Y to Sleeve	34	P	F5
M5	Drum	28	P	J15 to K15
M6	Bk to Sleeve	30	P	J15
M7	Transport	45	P	F5
M8	Color to Development drive	27	P	K15
M9	Cleaning	32	P	B13
M10	Scanner	29	S	H8

Symbol	Name	Index No.	P-to-P	
M11	Transfer belt	33	P	K12 to L12
M12	Paper feed	39	P	K1
M13	Polygon	47	P	F16 to I16
M14	Bk to Toner supply	43	P	H16
M15	C to Toner supply	42	P	H16 to I16
M16	M to Toner supply	41	P	I16
M17	Y to Toner supply	40	P	I16
M18	1st tray lift	36	P	I1
M19	2nd tray lift	37	P	I1
M20	3rd tray lift	38	P	I1
M21	Wire cleaner	44	P	H4
Fan Motors				
FM1	Fusing exhaust	49	P	E13
FM2	Charge inlet	48	P	E13
FM3	Inner cooling	57	P	G13
FM4	IPU cooling	52	P	H13
FM5	Polygon motor cooling	53	P	H13
FM6/7	Transport	55/54	P	J4
FM8/9	Development exhaust	58/59	P	E13
FM10	Optics exhaust	51	P	H6
FM11	LD cooling	50	P	I15
FM12/13	Optics cooling	60/61	P	I8
FM14	DC power supply cooling	56	P	D3
Sensors				
S1	By-pass feed table	73	P	E15
S2	Oil end	91	P	A13
S3	Exit	100	P	B13
S4	Transfer belt position	67	P	D13
S5	Humidity	88	P	G12
S6	Drum potential	125	P	H13
S7	M to Toner density	97	P	E7 to E8
S8	Y to Toner density	96	P	F7 to F8
S9	Bk to Toner density	101	P	G9
S10	C to Toner density	98	P	G9
S11	Transport	95	P	F7 to F8
S12	Registration	74	P	F7 to F8
S13	Registration guide set	70	P	G8
S14	Bk to Toner End	94	P	G16
S15	C to Toner End	93	P	G16 to H16
S16	M to Toner End	92	P	H16
S17	Y to Toner End	90	P	H16
S18	Transfer roller position	72	P	G7 to G8

Symbol	Name	Index No.	P-to-P	
S19	By-pass paper end	71	P	K8
S20	By-pass length	69	P	K8
S21	Toner overflow	86	P	K1
S22	1st lift	76	P	E1
S23	2nd lift	77	P	E1
S24	3rd lift	80	P	H1
S25	1st paper end	89	P	E1
S26	2nd paper end	87	P	F1
S27	3rd paper end	84	P	H1
S28	1st paper feed	82	P	F1
S29	2nd paper feed	85	P	G1
S30	3rd paper feed	83	P	G1
S31	Original length to 1	65	S	I8
S32	Original length to 2	63	S	J8
S33	Original width	106	S	J8
S34	Scanner unit lift	64	S	K8
S35	Platen cover position	62	S	K8
S36	Scanner HP	107	S	K8
Switches				
SW1/2/3/4	Front door safety	102/103/ 104/105	P	A15 to B16
SW5/6	Vertical transport set	78/79	P	L1
SW7	Main	99	P	A6 to B6
SW8	2nd paper size	75	P	J1
SW9	3rd tray set	81	P	H1 to I1
SW10	1st paper size	68	P	J1
Magnetic Clutches				
MC2	Transfer belt position	108	P	J15 to J16
MC3	By-pass feed	111	P	K8
MC4	Registration	110	P	I4 to I5
MC5	Transfer roller position	109	P	I4 to I5
MC6	1st feed	113	P	F1
MC7	2nd feed	114	P	G1
MC8	3rd feed	115	P	G1 to H1
Solenoids				
SOL1	Cleaning entrance seal	122	P	F15
SOL2	Lubricant bar	124	P	F15
SOL3	Cleaning blade	123	P	F15
SOL4	By-pass pick-up	112	P	K8
SOL5	1st pick-up	121	P	E1
SOL6	2nd pick-up	119	P	F1

Symbol	Name	Index No.	P-to-P	
SOL7	3rd pick-up	117	P	H1
SOL8	1st separation roller	120	P	F1
SOL9	2nd separation roller	118	P	G1
SOL10	3rd separation roller	116	P	G1
Lamps				
L1	Fusing	144	P	A14
L2	Pressure	143	P	A14
L3	Exposure	129	S	K9
L4	Quenching	126	P	G15 to G16
Heaters				
H1	Lower tray (option)	138	P	A5
H2	Upper tray (option)	134	P	A5
H3/H4	Transfer belt/roller	136/137	P	A5 to B5
H5	Optics anti-condensation	148	S	K12
H6	Drum	131	P	B10
Thermistors				
TH1	Fusing	133	P	A14
TH2	Pressure roller	142	P	A14
Thermofuses				
TF1	Fusing	132	P	A14
TF2	Pressure roller	141	P	A14
Thermoswitches				
TS1	Optics	130	S	K10
TS2	Transfer belt/roller	135	P	B4 to B5
Counters				
CO1	Black total	145	P	D15 to D16
CO2	Full color total	146	P	D15 to D16
Others				
CB1	Circuit breaker	139	P	A1 to A2
NF1	Noise filter	140	P	A2
CC1	Choke coil	147	P	B9

POINT TO POINT DIAGRAM
LILY (A172/A199):PRINTER

SYMBOL TABLE
AC Line
DC Line
Pulse Signal
Signal Direction
Active High
Active Low
( ) Voltage

Noise filter (NF1)
Circuit breaker (CB1)
Noise filter (PCB14)
ACI-L
ACI-N
ACO-L
ACO-N
Heater1.2L
Heater3.4L
N, C
(11) A 202- 1
(11) B - 2
(24) VAA
(Y24) Heater Relay
Lower tray heater (H1) (Option)
Upper tray heater (H2) (Option)
Transfer belt/roller (H3)
Transfer belt/roller (H4)
Transfer belt/roller (TS2)
(8A) P T1 T4
(8A) Q T2 T6 T5 T3
Main Switch (SW7)
T901 ACI-L
T902 ACI-N
903- 1 PSU L
903- 3 PSU N
AC drive (PCB3)
(6A) P 904- 2 SWON, L
(6A) Q 904- 1 SWON, N
MSW, L
MSW, N
SWOFF, N
SWOFF, L
907
(CC1) Choke Coil
Drum heater (H6)
Scanner
AC:L
AC:N
Fusing Lamp N
Fusing Lamp L
P, R, Lamp N
P, R, Lamp L
908-2
909-2
Fusing (TF1)
Fusing (TF2)
Pressure roller
Fusing (L1)
Pressure (L2)
Pressure roller (TH2)
Fusing (TH1)
S2 Oil end
S3 Exit
Cleaning Motor M9
(24) VAA
(Y24) Power Relay
(Y5) Fusing Lamp
(Y5) P, R Lamp
(24) VAA
(Y24) Power Relay
Interface 1 (PCB10)
Front Door Open (Y24)
(Y5) Trigger
(Y5) Motor, OK
N, C
(Y5) Belt Position
(Y24) Power Relay
(Y5) P, R, Lamp
(Y5) Fusing Lamp
(Y24) VAA
(Y24) Charge Pump
(Y24) Charge Fan
(Y24) D, Trigger
(Y5) D, Leak
(Y24) VAA
(Y5) D, PRM
(Y24) VAA
(Y5) Sorter ON Line
(Y24) VAA
(Y5) ID SensorLED
(Y5-0/S) ID Sensor
(Y5-0/S) Potential Sensor
(Y5-0/S) Humidity Sensor
(Y24) Inner Fan
(Y24-0/S) IPU Fan
(Y24-0/S) Polygon Fan
(Y24) Toner Fan
(Y24) Toner Fan
(Y24) Toner

SYMBOL TABLE

———	AC Line
———	DC Line
- - - - -	Pulse Signal
▷ ◁	Signal Direction
▲	Active High
▼	Active Low
( )	Voltage

Scanner control (PCB19)

107-A			107-
SCL15+	1	1	SCLK
PMSYNC+(▼5)	2	2	PMSYNCB
OB7(▼5)	3	3	B7
OB5(▼5)	4	4	B5
OB3(▼5)	5	5	B3
OB1(▼5)	6	6	B1
OG7(▼5)	7	7	G7
OG5(▼5)	8	8	G5
OG3(▼5)	9	9	G3
OG1(▼5)	10	10	G1
OR7(▼5)	11	11	R7
OR5(▼5)	12	12	R5
OR3(▼5)	13	13	R3
OR1(▼5)	14	14	R1
LSYNC+(▼5)	15	15	SLSYNCB
LGATE+(▼5)	16	16	SLGATEB
FGATE+(▼5)	17	17	SFGATEB
IPU1	18	18	UP0
TXDF(▼5)	19	19	UP2
RXDF(▼5)	20	20	UP4
CGND(0)	B 1	B 1	(0)CGND
CGND(0)	2	2	(0)CGND
OB6(▼5)	3	3	B6
OB4(▼5)	4	4	B4
OB2(▼5)	5	5	B2
OB0(▼5)	6	6	B0
OG6(▼5)	7	7	G6
OG4(▼5)	8	8	G4
OG2(▼5)	9	9	G2
OG0(▼5)	10	10	G0
OR6(▼5)	11	11	R6
OR4(▼5)	12	12	R4
OR2(▼5)	13	13	R2
OR0(▼5)	14	14	R0
CGND(0)	15	15	(0)CGND
CGND(0)	16	16	(0)CGND
CGND(0)	17	17	(0)CGND
+DIRR	18	18	UP1
IPU3	19	19	UP3
IPU2	20	20	UP5

Image Discriminate (PCB21)

CN CN

VCC(5) 304-1
CGND(0) -2

IPU interface (PCB25)

CN302'
CN302

CN302'	No.	CN302
CLK	A1	CLK
CGND	A2	COM1
BO7	A3	B117
BO5	A4	B115
BO3	A5	B113
BO1	A6	B111
GO7	A7	G117
GO5	A8	G115
GO3	A9	G113
GO1	A10	G111
RO7	A11	R117
RO5	A12	R115
RO3	A13	R113
RO1	A14	R111
CGND	A15	COM1
CGND	A16	COM1
FGATEB	A17	FGATE (▼5)
CPUFGB	A18	BRFG (▼5)
CGND	A19	COM1
TXD	A20	TXIDU
CGND	B1	COM1
CGND	B2	COM1
BO6	B3	B116
BO4	B4	B114
BO2	B5	B112
BOD	B6	B110
GO6	B7	G116
GO4	B8	G114
GO2	B9	G112
GOO	B10	G110
RO6	B11	R116
RO4	B12	R114
RO2	B13	R112
ROO	B14	R110
CGND	B15	COM1
CGND	B16	COM1
LSYNCB	B17	_LSYNC (▼5)
PMSYNCB	B18	PMSYNC (▼5)
N.C	B19	COM1
RXD	B20	RXIDU

Test Point		Test Point	
TP301	GND	TP346	_CPUFG
TP302	GND	TP347	SROY
TP305	TXMA	TP348	LDON
TP306	D1	TP351	DETP
TP307	D0	TP352	RXMA
TP308	D3	TP353	_SFG
TP309	D2	TP354	CLK
TP310	D5	TP355	_LS
TP311	D4	TP358	_TBELT
TP312	D7	TP359	DMSYNC
TP313	D6	TP360	RXD
TP345	_PM	TP361	TXD

CN No.
CN303 Fiber Cable(IPU)

VCC(5)
COM1(0)
+12V(12)
COM1(0)
-12V(-12)

301-1 -2 -3 -4 -5

Interface 2

1 VCC
2 CGND
3 12V(LD)
4 CGND(12V)
5 -12V
6 N.C.
7 VCC
8 CGND
9 VCC
10 CGND
11 N.C.
12 N.C.

COM1(0)
_TBELT(▼5)
COM1(0)
_LDPS(▼5)

305-1 -2 -3 -4

1 CGND
2 FGATE
3 CGND
4 LDPS

Main control

LD12V(12)
COM1(0)
COM1(0)
LDERR(▼5)
WCLOK
TS1
_WDT1(▼5)
_WDT3(▼5)
_WDT5(▼5)
_WDT7(▼5)
_WDT6(▼5)
_WDT4(▼5)
_WDT2(▼5)
_WDT0(▼5)
TS0
SELECT
TLDOFF(▼A5)
LEVEL
COM1(0)
LD5V(5)

304-B10 -A2 -A3 -A4 -A5 -A6 -A7 -A8 -A9 -A10 -B1 -B2 -B3 -B4 -B5 -B6 -B7 -B8 -B9 -A1

401-A1 -A2 -A3 -A4 -A5 -A6 -A7 -A8 -A9 -A10 -B1 -B2 -B3 -B4 -B5 -B6 -B7 -B8 -B9 -B10

VCA(LD12V)
CGND(12V)
N.C.
LDERR
WCLK
S1
DATA1
DATA3
DATA5
DATA7
DATA6
DATA4
DATA2
DATA0
SO
SELECT
LDOFF
LEVEL
CGND
VCC

LD drive (PCB26)

LD

Laser synchronizing detector (PCB27)

CGND
_DETP
VCC

306-1 -2 -3 101-3 -2 -1

COM1(0)
_DETP(▼5)
DP5V(5)

IPU (PCB24)

309-4 -3 -2 -1

1 VCC
2 TXPC
3 RXPC
4 CGND

VCC(5)
TXPC
RXPC
COM1(0)

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Operation panel (PCB16)

CN No.
GN1 Fiber Cable

FGATE+(▼5)
GND
LSYNC-(▲5)
CLOCK+(▼5)
GND
REDO-(▲5)
RED1-(▲5)
RED2+(▼5)
GREEN0+(▼5)
GND
GREEN1-(▲5)
GREEN2-(▲5)
BLUE0+(▼5)
BLUE1+(▼5)
N.C.
N.C.
BLUE1-(▲5)
BLUE0-(▲5)
GND
GREEN2+(▼5)
GREEN1+(▼5)
GREEN0-(▲5)
RED2-(▲5)
GND
RED1+(▼5)
RED0+(▼5)
CLOCK-(▲5)
GND
LSYNC+(▼5)
FGATE-(▲5)

3
-A 1 1
-A 2 2
-A 3 3
-A 4 4
-A 5 5
-A 6 6
-A 7 7
-A 8 8
-A 9 9
-A10 10
-A11 11
-A12 12
-A13 13
-A14 14
-A15 15
-B 1
-B 2
-B 3
-B 4
-B 5
-B 6
-B 7
-B 8
-B 9
-B10
-B11
-B12
-B13
-B14
-B15

15 303-1
14 -3
13 -5
12 -7
11 -9
10 -11
9 -13
8 -15
7 -17
6 -19
5 -21
4 -23
3 -25
2 -27
1 -29
15 30
14 -28
13 -26
12 -24
11 -22
10 -20
9 -18
8 -16
7 -14
6 -12
5 -10
4 -8
3 -6
2 -4
1 -2

14-1 1
-3 3 VCC(5)
-2 2 VCA
-4 4 CGND
-5 5 CGND(12V)
VCB

Interface 2

_OFGATE+
COM1
_OLSYNC-
OCLOCK+
COM1
REDO-
RED1-
RED2+
GREEN0+
COM1
GREEN1-
GREEN2-
BLUE0+
BLUE1+
COM1
BLUE1-
BLUE0-
COM1
GREEN2+
GREEN1+
GREEN0-
RED2-
COM1
RED1+
RED0+
OCLOCK-
_OLSYNC+
_OFGATE-

CN302
CN310
CN301
CN311

CN301	No.	CN311	CN302	No.	CN310	
VCC	A1	VCC	FWB7	A1	FW7B	(▼5)
VCC	B1	VCC	FWB6	B1	FW6B	(▼5)
VCC	A2	VCC	FWB5	A2	FW5B	(▼5)
FCAS	B2	FCASB (▼5)	FWB4	B2	FW4B	(▼5)
FRAS	A3	FRASB (▼5)	FWB3	A3	FW3B	(▼5)
PAGE	B3	PAGE	FWB2	B3	FW2B	(▼5)
FOEB7	A4	FOE7B (▼5)	FWB1	A4	FW1B	(▼5)
FOEB6	B4	FOE6B (▼5)	FWB0	B4	FW0B	(▼5)
FOEB5	A5	FOE5B (▼5)	COM1	A5	COM1	
COM1	B5	COM1	COM1	B5	COM1	
FOEB4	A6	FOE4B (▼5)	FIO15	A6	FIO15	
FOEB3	B6	FOE3B (▼5)	FIO14	B6	FIO14	
FOEB2	A7	FOE2B (▼5)	FIO13	A7	FIO13	
FOEB1	B7	FOE1B (▼5)	FIO12	B7	FIO12	
FOEB0	A8	FOE0B (▼5)	FIO11	A8	FIO11	
FMAD11	B8	FMAD11	FIO10	B8	FIO10	
FMAD10	A9	FMAD10	FIO9	A9	FIO9	
FMAD9	B9	FMAD9	FIO8	B9	FIO8	
FMAD8	A10	FMAD8	VCC	A10	VCC	
VCC	B10	VCC	VCC	B10	VCC	
VCC	A11	VCC	VCC	A11	VCC	
VCC	B11	VCC	VCC	B11	VCC	
FMAD7	A12	FMAD7	FIO7	A12	FIO7	
FMAD6	B12	FMAD6	FIO6	B12	FIO6	
FMAD5	A13	FMAD5	FIO5	A13	FIO5	
FMAD4	B13	FMAD4	FIO4	B13	FIO4	
FMAD3	A14	FMAD3	FIO3	A14	FIO3	
FMAD2	B14	FMAD2	FIO2	B14	FIO2	
FMAD1	A15	FMAD1	FIO1	A15	FIO1	
FMAD0	B15	FMAD0	FIO0	B15	FIO0	
DEB1	A16	DEB1	_DELSYNC	A16	_DELSYNC	(▼5)
DEB0	B16	DEB0	_DEFGATE	B16	_DEFGATE	(▼5)
DEG2	A17	DEG2	_SETDF	A17	SETDF	(▼5)
DEG1	B17	DEG1	_DERST	B17	_DERST	(▼5)
DEG0	A18	DEG0	COM1	A18	COM1	
DER2	B18	DER2	COM1	B18	COM1	
DER1	A19	DER1	COM1	A19	COM1	
DER0	B19	DER0	DECLK	B19	DECLK	
COM1	A20	COM1	COM1	A20	COM1	
COM1	B20	COM1	COM1	B20	COM1	

Display Editor interface (PCB22)

Operation panel control (PCB23)

CN No.
CN105 Fiber Cable(Scanner)

2 1
1 2 FM10 Optics exhaust

101-13		101- 1	
REI-	-12	- 2	REI-
REB	-11	- 3	REB
REO	-10	- 4	REO
ANGND	- 9	- 5	ANGND
ROI-	- 8	- 6	ROI-
ROB	- 7	- 7	ROB
ROO	- 6	- 8	ROO
ANGND	- 5	- 9	ANGND
GEI-	- 4	-10	GEI-
GEB	- 3	-11	GEB
GEO	- 2	-12	GEO
ANGND	- 1	-13	ANGND
			ANGND

CCD (PCB18)

102-12		102- 1	
GOI-	-11	- 2	GOI-
GOB	-10	- 3	GOB
GOO	- 9	- 4	GOO
ANGND	- 8	- 5	ANGND
BEI-	- 7	- 6	BEI-
BEB	- 6	- 7	BEB
BEO	- 5	- 8	BEO
ANGND	- 4	- 9	ANGND
BOI-	- 3	-10	BOI-
BOB	- 2	-11	BOB
BOO	- 1	-12	BOO
ANGND			ANGND

103-14		103- 1	
VCC(5)	-13	- 2	VCC
CGND(0)	-12	- 3	CGND
CGND(0)	-11	- 4	CGND
VCA(12)	-10	- 5	VCA(12V)
AGND(0)	- 9	- 6	AGND
VCB(-12)	- 8	- 7	VCB(-12V)
AGND(0)	- 7	- 8	AGND
S(▼5)	- 6	- 9	_S
SH1F3(▼5)	- 5	-10	_SH13
SH1F2(▼5)	- 4	-11	_SH2
R1B(▼5)	- 3	-12	_R1B
R2B(▼5)	- 2	-13	_R2B
O1L(▼5)	- 1	-14	_1L
			_2L

Scanner drive (PCB20)

109-1		101-A 1	
VAA(24)	-2		
FAN2,3(▼24)	106-A15	-A 2	Scanner Lift
Scanner Lift(▼5)	-A14	-A 3	Size3
Size3(▼5)	-A13	-A 4	Size2
Size2(▼5)	-A12	-A 5	Size1
Size1(▼5)	-A11	-A 6	Size0
Size0(▼5)	-A10	-A 7	CGND
CGND(0)	-A 9	-A 8	VSET
VSET	-A 8	-A 9	ISET
ISET	-A 7	-A10	DAISET
DAISET	-A 6	-A11	CGND
CGND(0)	-A 5	-A12	RTD5
RTD5	-A 4	-A13	RTD4
RTD4	-A 3	-A14	RTD3
RTD3	-A 2	-A15	RTD2
RTD2	-A 1	-B 1	RTD1
RTD1	-B15	-B 2	Scanner HP
Scanner HP(▼5)	-B14	-B 3	Cover Position
Cover Position(▼5)	-B13	-B 4	N.C.
FAN3	-B12	-B 5	N.C.
FAN2	-B11	-B 6	N.C.
FAN1(▼24)	-B10	-B 7	Optics Cooling Fan
FAN0(▼24)	-B 9	-B 8	Optics Cooling Fan
FAN0(▼24)	-B 8	-B 9	LampON
LampON(▼5)	-B 7	-B10	LRDA
LRDA	-B 6	-B11	LampEM
LampEM(▼5)	-B 5	-B12	N.C.
VAA(24)	-B 4	-B13	N.C.
IN-1	-B 3	-B14	Size6
Size6(▼5)	-B 2	-B15	Size5
Size5(▼5)	-B 1		Size4
Size4(▼5)			

103- 1		
A(▼24or38)	- 2	
B(▼24or38)	- 3	M10 Scanner
C(▼24or38)	- 4	
D(▼24or38)	- 5	
E(▼24or38)		
VAA(24)	104-A1 2	
Cooling Fan(▼24)	-A2 1	2 FM12 Optics cooling
N.C.	-A3	
VAA(24)	2	
Cooling Fan(▼24)	-A4 1	2 FM13 Optics cooling
N.C.	-A5	
CGND(0)	-A6	
VCC(5)	-A7 5	
Size2(▼5)	-A8 4	
Size1(▼5)	-A9 3	S31 Original length-1
Size0(▼5)	-A10 2	
CGND(0)	-A11 1	
VCC(5)	-B1 3	
Size3(▼5)	-B2 2	S32 Original length-2
N.C.	-B3 1	
CGND(0)	-B4	
VCC(5)	-B5 5	
Size6(▼5)	-B6 4	
Size5(▼5)	-B7 3	S33 Original width
Size4(▼5)	-B8 2	
N.C.	-B9 1	
N.C.	-B10	
Scanner HP(▲5)	-B11	
CGND(0)	105-A1 3	
VCC(5)	-A2 2	S36 Scanner HP
N.C.	-A3 1	
Cover Position(▼5)	-A4	
CGND(0)	-A5 3	
VCC(5)	-A6 2	S35 Platen cover position
N.C.	-A7 1	
N.C.	-A8	
VCC(5)	-A9	
Scanner Lift(▼5)	-B1 3 1	
CGND(0)	-B2 2 2	S34 Scanner unit lift
N.C.	-B3 1 3	
AGND(0)	-B4	
LampON(▼5)	-B5	
LampEM(▼5)	-B6	
LRDA	-B7	
VAA(24)	-B8	
	-B9	

104- 4		
- 6	(0) AGND	
- 5	(-12) VCB	
- 2	(0) CGND	
- 7	(5) VCC	
	(24) VAA	

102- 1		
	- 4	(38) VMM
	- 2	(0) MGND
	- 3	(24) VAA
	- 5	(24) VAA
	- 6	(12) VCA
	- 8	(5) VCC
	- 9	(0) CGND

VMM(SCN)(38V)	1
MGND(SCN)	2
VAA(24V)	3
AGND	4
-12V	5
-12V	6
CGND(12V)	7
VCC(5V)	8
CGND	9
VCC(5V)	10

Interface 2

Exposure (L3)

Optics (TS1)

2-1
-3
3-5
-4
-3
-2
-1

Lamp regulator (PCB2)

OUT(+)
OUT(-)
AGND
LampON
LampEM
LRDA
VAA

AC(L)
AC(N)

Optics anti-condensation (H5)

1-1 1 1 AC:L
2 2 AC:N
3 AC:LR,L
-4 4 AC:LR,N

AC drive

PPOINT TO POINT DIAGRAM
LILY (A172/A199): SCANNER